

The Story of the Manhattan Project You Haven't Heard!

*"...Certainly leads the experienced physicist
to believe..."*

Dr. Delmar Bergen

**Retired Director, Weapons Program Office
Los Alamos National Laboratory**

*"Well-researched, well-reasoned, well
written....To be taken seriously by both
scholars and laymen alike."*

Dr. Douglas Tobler

Professor Emeritus of History, BYU

Critical Mass

**How Nazi Germany Surrendered
Enriched Uranium For The
United States' Atomic Bomb**

Carter Plymton Hydrick

Critical Mass

The Real Story of the Birth of the Atomic Bomb and the Nuclear Age

by Carter P. Hydrick

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Contents

Introduction

Part One - The Uranium Bomb

1. U-234/U235
2. The Two Billion Dollar Bet
3. Uranium
4. The Hidden Bomb
5. Oak Ridge

Part Two - The Plutonium Bomb

6. Timing
7. Hanford
8. Simple Math

Part Three - Martin Bormann

9. Maiden Voyage
10. A Pig Digging For A Potato
11. Operation Fireland
12. The Pig Finds A Potato
13. Escape and Surrender
14. Occam's Razor

[Epilogue](#)

[Bibliography](#).

Introduction

This micro-history is suggested as the result of newly discovered, very significant events that occurred during the closing weeks of World War Two. As the story of Critical Mass unfolds, it questions the foundations of the traditional history of the making and use of the first atomic bombs as well as our understanding of the Nuclear Age. The facts reveal not only important new information about the race to produce the bomb; but the new information helps us understand how the sum of the history of man was combined in one brief moment to create a critical mass in humanity that shattered the old world forever and ushered in the Nuclear Age.

The previously secret (now declassified) unpublished military, state, intelligence and Department of Energy documentation cited throughout Critical Mass suggests that the atomic bomb was not fully developed and built by American scientists and technicians, as the traditional and long-standing history asserts. Instead, the evidence shows that enriched uranium and other atomic bomb components developed by Nazi Germany were surrendered to United States forces during the final weeks of the war - probably according to prearranged surreptitious agreements - and were a vital part of the materials used to create the bombs that were dropped on Hiroshima and Nagasaki. The evidence indicates that without these materials the United States would have fallen short of achieving its nuclear weapons objectives.

Interwoven into this story - in fact, integral to it - is provocative evidence that connects Hitler's behind-the-scenes right-hand man, Nazi Party Chief Martin Bormann, to Germany's very nearly successful effort to create an atomic bomb; and to Germany's last-ditch efforts to transfer that technology to Japan. Evidence also suggests that Bormann, at the latest possible moment, turned against his Asian ally and decided to hand the keys of world dominion - in the form of the atomic bomb - to any Allied country that would treat with him. Thus Bormann covertly negotiated a separate, and very secret, personal peace with the United States that allowed him to disappear from the front page of history and slide silently between the shadows of a murky past and a phantasmal future.

The events that initiated this story have each lead to astounding new revelations that had the net effect of continually, and, seemingly unendingly, expanding the scope of this book. As a private citizen who researched and wrote the book around the demands of a full-time job and who, with the aid of generous friends and family, financed the research and writing, generating unlimited resources to constantly expand the book's scope was impossible. Despite desires to throw light in every corner, proving the premises presented in Critical Mass has, of necessity, been circumscribed to proving the following basic assertions:

1. That the Manhattan Project was not successful producing all of the needed enriched uranium - isotope U235 - in time to fulfill its atomic bomb requirements, nor was it successful creating a triggering device for the plutonium bomb without the help of captured German components.
2. While not proving conclusively that uranium was enriched in Germany, it would be demonstrated that there was potential in Germany, despite the traditional history that states otherwise, for the Nazi program to successfully enrich U235. Enrichment would have been in quantities that could have supplied the bomb-grade uranium needed by the United States to complete its atomic bomb project. Also, that Germany successfully developed a triggering mechanism usable for the plutonium bomb.
3. That U235 for the uranium bomb, and infrared fuses for the plutonium bomb, were obtained by the U.S. from Germany and were transferred into the possession of the Manhattan Project and ultimately used in the bombs dropped on Japan.

As a matter of sufficiently authenticating the above assertions, I have tried to obtain a minimum of two corroborating pieces of evidence to validate the theories presented. In almost every case, as will be seen, this has been accomplished. In many, three or more proofs are given. In a few instances only one piece of evidence is extant; but taken on the whole, the accumulated evidence is considerable if not incontrovertible.

The question may be asked that, with the hundreds if not thousands of books, articles and histories that have been written about the making of the first atomic bombs, how can any new and unpublished information be added to the chronicle. Remarkably, the answer, in part, is that very few of the writers of those histories ever saw any of the original records of the most seminal events that constituted the makings of the bombs. As far as I can tell, I was the first to review the actual uranium enrichment production records, the shipping and receiving records of materials sent from Oak Ridge to Los Alamos, the metallurgical fabrication records of the making of the bombs themselves, and the records and testimony regarding failure to develop a viable triggering device for the plutonium bomb. Of the 38 boxes of Oak Ridge records held in the Southeast Regional Archives in Atlanta, Georgia I had pulled for review, only four had been opened since their declassification in 1967 and 1978. I was the first to open and cull through many of these boxes, and within these containers I found many critical documents. And there are boxes that remain, their declassification seals yet unbroken.

Apparently, the authors described above have relied on personal accounts and the administrative, strategic and general records harbored in the National Archives in Washington for their research. The critical daily production records of Oak Ridge and elsewhere have been all but ignored, though they reveal important information not previously considered in other histories, and although they tell a different story than that presently believed. Even if those authors had read, assimilated and interpreted the available records, the discrepancies may have been considered anomalous and possibly would have been ignored when compared against the overpowering reputation of the traditional history. Most of that history can be traced in theme and content to Manhattan Project Commanding General Leslie Groves' book on the subject, *Now It Can Be Told*.

Now It Can Be Told presents the story of the making of the atomic bomb that the United States government needed the world to hear at the time. There was, undoubtedly, justification for this guarded approach considering the exigencies of the era. The chronicle of history should be corrected when opportunity allows, however - though it all too often is not - for the understanding and benefit of generations to come. And, frankly, for the

recognition of all those who played a part, as well as the enlightenment of those who simply desire to know the truth. Democracies especially depend on an informed citizenry to safeguard the proper use of power and appropriate oversight of important military and political policy.

Certainly not all information and actions of a government at war or in conflict with another sovereignty can be reviewed on an open basis contemporaneously with the critical events. But as timely issues are resolved or neutralized by new events, it is incumbent upon that democratic society to carefully review and analyze the events and equitably judge the system and the people involved. Through this course we ensure the nation's best interests were preserved, and make whatever adjustments are necessary to provide a guide for future like endeavors.

Other official and semi-official accounts of the Manhattan Project and the programs that competed against it have been written, the best among them being Richard Rhodes' exceptional Pulitzer Prize winning book, *The Making Of The Atomic Bomb*. Critical Mass attempts in no way to re-document the otherwise reliable historical elements of a very complex and detailed subject, other than to provide a basic understanding useful to the reader's analysis of the scenario forwarded within these pages. Critical Mass simply suggests that the data recently found describe some very different events than are recounted in the presently accepted history.

As noted, many other authors' accounts are cited herein, but all of them, ultimately, either directly or indirectly, by default or design, have been molded by the man who presided over the project itself, General Groves. During the very process of the making of the atomic bombs, through compartmentalization and by mixing a high percentage of genuine data with innuendo - as well as judicious use of the occasional untruth - Groves was able to create a resilient and coherent self-perpetuating myth of the birth of the atomic age.

Much of the information used to tell the story in Critical Mass does come from the writings of Groves and other authors. David Irving, Britain's controversial but documentation-dependant World War II historian has recorded much of the German effort to create a bomb in his book, *The German Atomic Bomb*. His account alone, though he seems not to realize it,

goes a long way toward impeaching the accepted history that, because Germany failed to create plutonium, it therefore failed to build an atomic bomb.

There are two ways to build an atomic bomb, one of plutonium, the other of uranium. Irving brings to light ample information that, when considered with other evidence newly discovered and revealed in *Critical Mass*, suggests the Germans produced the material for and all but assembled a uranium bomb. In the traditional history of the bomb, Groves has positioned the German plutonium effort as the only nuclear initiative Germany ever pursued. And he has magnified this misinformation, couched in a cushion of half-truths, to immense proportions - large enough to hide what appears to be a huge German uranium enrichment project behind it - and thus he has shielded the Nazi near-success from the view of the world. His motivations for doing so will be discussed in detail later.

One of many other authors quoted in *Critical Mass* is former World War Two intelligence officer Ladislav Farago, who documented Martin Bormann's escape from Nazi Germany at the end of the war and his ensuing life in semi-secret exile in South America in his book, *Aftermath*. Farago was accused and supposedly proven, with the help of the CIA, of having forged the documentation he used to verify his claims about Bormann. *Critical Mass* reviews the subject of the CIA and its predecessor the OSS, and their involvement in the negotiations with Bormann and eventual surrender of German-made nuclear bomb materials during the course of the war, later within the body text of this book. Suffice it to say here that involvement by the CIA in a fair perusal of Farago's findings must be suspect.

Critical Mass quotes other authors, as well, who have independently discovered similar but different documentation to that Mr. Farago cites, and whose findings exonerate and rehabilitate Ladislav Farago's work. Among these authors are Paul Manning, former journalist for the New York Times and author of *Martin Bormann - Nazi In Exile*. Manning's credentials as a journalist particularly are impeccable, and his reputation is unassailable. Although he did not accept an offer immediately after the war to serve as the civilian deputy of the United States' occupation zone of Germany, the

offer itself attests to the high regard in which he is held, as well as to the potential military intelligence and other resources he had available when researching his book.

Another author from whose writings I have drawn is William Stevenson, author of the book *A Man Called Intrepid*, the approved biography of another gentleman and friend of Stevenson's, a man by the same name, Sir William Stephenson (unrelated, note spellings). Sir William is the man who oversaw the combined intelligence efforts of the United States and England during World War II, and who, incidentally, plays a minor role in our story within the covers of Critical Mass. Author Stevenson's book is titled *The Bormann Brotherhood*.

Many other authors are quoted, as well, to highlight and validate the conclusions presented in Critical Mass. But the definitive body of evidence is the actual documents cited in this book that dispassionately record the numbers and weights and dates and times and places and people that constitute the real events that occurred.

The silent archives, in some cases long untouched, contain the remaining few pieces of the picture that had been painted over with duplicitous details and fraudulent facts. Exposing those lost data to the light of day is much like the art curator who takes a blacklight to a painting to ascertain its origin. Under scrutiny of light tuned only to see the original, the primary picture is exposed underneath as well as any revisions that may later have been made. So it is with the certifieds cited in Critical Mass. The light of day, "always a great disinfectant" as the saying goes, reveals through newly-disclosed documentation the true story of the Manhattan Project during the birth of its atomic offspring - with all its flaws, foibles and unholy alliances as well as its ultimate, although somehow twisted, success.

And even with those flaws and foibles it is, at once, a story of genius and perseverance as well as a lesson in man's own struggle to grow morally and spiritually at the same pace that he has grown intellectually and technologically. For, as social beings who must share this earth, we are all interdependent upon one another. When one such as Hitler rises to power, the only defense against the bully who insists on blood, when all reason has failed, is to be more the aggressor, or submit and perish. Such course

devolves to a level of behavior differentiated from the instigator's only by the moral imperative of one's right to survive.

The sad fact is we can rise as a race only to the level of our least enlightened. Until that time, the weight of our human frailties and flaws will at irregular intervals compress to critical mass and ignite a new explosion of pain and suffering until we learn once and for all that our cumulative morality must meet or exceed our united intellects.

Part One

The Uranium Bomb

Chapter One - U-234/U235

"The most important and secret item of cargo, the uranium oxide, which I believe was radioactive, was loaded into one of the vertical steel tubes [of German U-boat U-234].... Two Japanese officers...[were]... painting a description in black characters on the brown paper wrapping.... Once the inscription U235 (the scientific designation for enriched uranium, the type required to make a bomb - author's note) had been painted on the wrapping of a package, it would then be carried over...and stowed in one of the six vertical mine shafts." [1]

Wolfgang Hirschfeld, Chief Radio Operator of U-234

"Lieut Comdr Karl B Reese USNR, Lieut (JG) Edward P McDermott USNR and Major John E Vance CE USA will report to commandant May 30th Wednesday in connection with cargo U-234." [2]

US Navy secret transmission #292045 from Commander Naval Operations to Portsmouth Naval Yard, 30 May 1945

"I just got a shipment in of captured material.... I have just talked to Vance and they are taking it off the ship.... I have about 80 cases of U powder in cases. He (Vance) is handling all of that now." [3]

Telephone transcript between Manhattan Project security officers Major Smith and Major Traynor, 14 June, 1945.

The traditional history of the atomic bomb accepts as an unimportant footnote the arrival of U-234 on United States shores, and admits the U-boat carried uranium oxide along with its load of powerful passengers and war-making materials. The accepted history also acknowledges these passengers were whisked away to Washington for interrogation and the cargo was quickly commandeered for use elsewhere. The traditional history

even concedes that two Japanese officers were onboard U-234 and that they committed a form of unconventional Samurai suicide rather than be captured by their enemies.

The traditional history denies, however, that the uranium on board U-234 was enriched and therefore easily usable in an atomic bomb. The accepted history asserts there is no evidence that the uranium stocks of U-234 were transferred into the Manhattan Project, although recent suggestions have hinted that this may have occurred. And the traditional history asserts that the bomb components on board U-234 arrived too late to be included in the atomic bombs that were dropped on Japan. The documentation indicates quite differently on all accounts.

Before U-234 had landed at Portsmouth - before it even left Europe - United States and British intelligence knew U-234 was on a mission to Japan and that it carried important passengers and cargo.[4] A portion of the cargo, especially, was of a singular nature. According to U-234's chief radio operator, Wolfgang Hirschfeld, who witnessed the loading of the U-boat:

The most important and secret item of cargo, the uranium oxide, which I believe was highly radioactive, was loaded into one of the vertical steel tubes one morning in February, 1945. Two Japanese officers were to travel aboard U-234 on the voyage to Tokyo: Air Force Colonel Genzo Shosi, an aeronautical engineer, and Navy Captain Hideo Tomonaga, a submarine architect who, it will be recalled, had arrived in France aboard U-180 about eighteen months previously with a fortune in gold for the Japanese Embassy in Berlin. I saw these two officers seated on a crate on the forecasing engaged in painting a description in black characters on the brown paper wrapping gummed around each of a number of containers of uniform size.

At the time I didn't see how many containers there were, but the Loading Manifest showed ten. Each case was a cube, possibly steel and lead, nine inches along each side and enormously heavy. Once the inscription U235 had been painted on the wrapping of a package, it would then be carried over to the knot of crewmen under the supervision of Sub-Lt Pfaff and the boatswain, Peter Scholch, and stowed in one of the six vertical mineshafts.[5]

Hirschfeld's straightforward account of the uranium being "highly radioactive" - he later witnessed the storage tubes being tested with Geiger counters [6] - and labeled "U235" provides profoundly important information about this cargo. U235 is the scientific designation of enriched uranium - the type of uranium required to fuel an atomic bomb. While the uranium remained a secret from all but the highest levels within the United States until after the surrender of U-234, a captured German ULTRA encoder/decoder had allowed the Western Allies to intercept and decode German and Japanese radio transmissions. Some of these captured signals had already identified the U-boat as being on a special mission to Japan and even identified General Kessler and much of his cortège as likely to be onboard, but the curious uranium was never mentioned. The strictest secrecy was maintained, nonetheless, around the U-boat.

As early as 13 May, the day before U-234 was actually boarded by the Sutton's prize crew, orders had already been dispatched that commanded special handling of the passengers and crew of U-234 when it was surrendered:

Press representatives may be permitted to interview officers and men of German submarines that surrender. This message applies only to submarines that surrender. It does not apply to other prisoners of war. It does not apply to prisoners of the U-234. Prisoners of the U-234 must not be interviewed by press representatives.[7]

Two days later, while the Sutton was slowly steaming toward Portsmouth with U-234 at her side, more orders were received. "Documents and personnel of U-234 are most important and any and all doubtful personnel should be sent here,"[8] the commander of naval operations in Washington, D.C. ordered. The same day, the commander in chief of the Navy instructed, "Maintain prisoners U-234 incommunicado and send them under Navy department representative to Washington for interrogation." [9] The effort to keep U-234 under wraps was only partially successful. Reporters had been allowed to interview prisoners from previous U-boats, and, in fact, were allowed to interview captured crews from succeeding U-boats, as well.

When the press discovered U-234 was going to be off limits, a cry and hue went up that took two days to settle. Following extended negotiations, a compromise was struck between the Navy brass and the press core.[10] The reporters were allowed to take photographs of the people disembarking the boat when it landed, but no talking to the prisoners was permitted.[11] When they landed at the pier, the prisoners walked silently through the gawking crowd and climbed into buses, to be driven out of the spotlight and far from the glaring eyes of history. On 23 May, the cargo manifest of U-234 was translated [12] by the office of Naval Intelligence, quickly triggering a series of events. On the second page of the manifest, halfway down the page, was the entry "*10 cases, 560 kilograms, uranium oxide.*" Whoever first read the entry and understood the frightening capabilities and potential purpose of uranium must have been stunned by the entry. Certainly questions were asked. Was this the first shipment of uranium to Japan or had others already slipped by? Did the Japanese have the capacity to use it? Could they build a bomb?

Whatever the answers, within four days personnel from the Office of Naval Intelligence had brought U-234's second watch officer, Karl Pfaff - who had not been brought to Washington with the original batch of high-level prisoners, but who had overseen loading of the U-boat in Germany - to Washington and interrogated him. They quickly radioed Portsmouth:

Pfaff prepared manifest list and knows kind documents and cargo in each tube. Pfaff states...uranium oxide loaded in gold cylinders and as long as cylinders not opened can be handled like crude TNT. These containers should not be opened as substance will become sensitive and dangerous.[13]

The identification that the uranium was stowed in gold-lined cylinders and that it would become "sensitive and dangerous" when unpacked provides clear substantiation of radio officer Hirschfeld's assertion that the uranium was labeled with the title U235. Uranium that has had its proportion of the isotope U235 increased compared to the more common isotope of uranium, U238, is known as enriched uranium. When that enrichment becomes 70 percent or above, it is bomb-grade uranium. The process of enriching uranium during the war was highly technical and very expensive - it still is.

Upon first reading that the uranium on board U-234 was stored in gold-lined cylinders, this author tracked down Clarence Larsen, former director of the leading uranium enrichment process at Oak Ridge, Tennessee, where the Manhattan Project's uranium enrichment facilities were housed. In a telephone conversation, I asked Mr. Larsen what, if anything, would be the purpose of shipping uranium in gold-lined containers.[14]

Mr. Larsen remembered that the Oak Ridge program used gold trays when working with enriched uranium. He explained that, because uranium enrichment was a very costly process, enriched uranium needed to be protected jealously, but because it is very corrosive, it is easily invaded by any but the most stable materials, and would then become contaminated. To prevent the loss to contamination of the invaluable enriched uranium, gold was used. Gold is one of the most stable substances on earth. While expensive, Mr. Larsen explained, the cost of gold was a drop in the bucket compared to the value of enriched uranium. Would raw uranium, rather than enriched uranium, be stored in gold containers, I asked? Not likely, Mr. Larsen responded. The value of raw uranium is, and was at the time, inconsequential compared to the cost of gold.

Assuming the Germans invested roughly the same amount of money as the Manhattan Project to enrich their uranium, which it appears they did,[15] the cost of the U235 on board the submarine was somewhere in the neighborhood of \$100,000 an ounce; by far the most expensive substance on earth. The fact that the enriched uranium had the capacity to deliver world dominance to the first country that processed and used it made it priceless. A long voyage with the U235 stowed in anything but gold could have cost the German/Japanese atomic bomb program dearly. In addition to the gold-lined shipping containers corroborating Hirschfeld's identification of the uranium as U235, the description of the uranium's characteristics when its container was opened also tends to support the conclusion the uranium was enriched.

Uranium of all kinds is not only corrosive, but it is toxic if swallowed. In its raw state, however, which is 99.3 percent U238, the substance poses little threat to man as long as he does not eat it. The stock of raw uranium that eventually was processed by the Manhattan Project originally had been

stored in steel drums and was sitting in the open at a Staten Island storage facility.[16] Much of the German raw uranium discovered in salt mines at the end of the war also was stored in steel drums, many of them broken open.

The material was loaded into heavy paper sacks and carried from the storage area by apparently unprotected G.I.s.[17] Since then, more precautions have been taken in handling raw uranium, but at the time, caution was minimal and raw uranium was considered to be relatively safe. [18] For the Navy to note the uranium would become "sensitive and dangerous" and should be "handled like crude TNT" when it was unpacked tends to indicate that the uranium enclosed was, in fact, enriched uranium. Uranium enriched significantly in U235 is radioactive and therefore should be handled with appropriate caution, as the communiqué described.

By 16 June 1945, a second cargo manifest had been prepared for U-234, this time by the United States Navy. But the uranium was not on the list. It was not even marked as shipped out or having once been on hand. It was never mentioned. It was gone - as if it never existed.

Where did the uranium go? Eleven days after U-234 was escorted into Portsmouth, and four days after Pfaff identified its location on the U-boat, a team was selected to oversee the offloading of U-234. Portsmouth received the following message:

Lieut. Comdr. Karl B Reese USNR, Lieut (JG) Edward P McDermott USNR and Major John E Vance CE USA [Corps of Engineers, United States Army (the Manhattan Project's parent organization) - author's note] will report to commandant May 30th Wednesday in connection with cargo U-234.

It is contemplated that shipment will be made by ship to ordnance investigation laboratory NAVPOWFAC Indian Head Maryland if this is feasible.[19]

The order, dispatched by the chief of naval operations, is revealing if not outright startling for the selection of one member of its three-man team. Including Major Vance of the Army Corps of Engineers in what was

otherwise an all Navy operation seems a telling selection. The military services of the United States, as in most other countries, were highly competitive with one another. True, U-234's cargo included a mixed bag of aeronautics, rocketry and armor-piercing technology that the Army could use, too, but the Navy had programs for all of these materials and surely would have done its own analysis first and then possibly shared the information with its service brothers.

Someone, somewhere at a very high level, appears to have seen that the Army was brought into the scavenging operation that had become U-234; not just any Army group, but the group that oversees the Manhattan Project - the Corps of Engineers.

Major John E. Vance was not only from the Corps of Engineers, the Army department under which the Manhattan Project operated, but, if a telephone transcript taken from Manhattan Project archives refers to the same "Vance" as the Major assigned to offload U-234 - as it appears to - then he was part of America's super-secret atomic bomb project, as well. The transcript is of a conversation between Manhattan Project intelligence officers Smith and Traynor and was recorded two weeks after "Major Vance" was assigned to the team responsible for unloading the material captured on U-234.

Smith: I just got a shipment in of captured material and there were 39 drums and 70 wooden barrels and all of that is liquid. What I need is a test to see what the concentration is and a set of recommendations as to disposal. I have just talked to Vance and they are taking it off the ship and putting it in the 73rd Street Warehouse. In addition to that I have about 80 cases of U powder in cases. He (Vance) is handling all of that now. Can you do the testing and how quickly can it be done? All we know is that it ranges from 10 to 85 percent and we want to know which and what.

Traynor: Can you give me what was in those cases?

Smith: U powder. Vance will take care of the testing of that.

Traynor: The other stuff is something else?

Smith: The other is water.[20]

U-234's cargo manifest reveals that, besides its uranium, among its cargo was 10 "bales" of drums and 50 "bales" of barrels. The barrels are noted in

the manifest to have contained benzyl cellulose, a very stable substance [21] that may have been used as a biological shield from radiation or as a coolant or moderator in a liquid reactor.[22] The manifest lists the drums as containing "confidential material." As surprising as it may seem, this secret substance may have been the "water" that Major Smith noted in his discussion with Major Traynor. Why would Major Smith want the water tested? And what did he mean when he said that its concentration ranged "from 10 to 85 percent and we want to know which and what"?

The leaders of the German project to breed plutonium had decided to use heavy water, or deuterium oxide, as the moderator for a plutonium-breeding liquid reactor. The procedure of creating heavy water results in regular water molecules picking up an additional hydrogen atom. The percentage of water molecules with the extra hydrogen represents the level of concentration of the heavy water. Thus Major Smith's seemingly overzealous concern about water and his question about concentration is predictable if Smith suspected the material was intended for a nuclear reactor. And using heavy water as a major element of their plutonium breeding reactor project, it is easy to see why the Germans labeled the drums "confidential material." The evidence indicates that U-234 - if the captured cargo being tested by "Vance" was from U-234, which seems very probable given all considerations - carried components for making not only a uranium bomb, but a plutonium bomb, also.

Further corroborating the connection of the barrels and drums as those that were taken from U-234 is a handwritten note found in the Southeast national archives held at East Point, Georgia.[23] Dated 16 June, 1945, two days after Smith's and Traynor's telephone conversation, the note described how 109 barrels and drums - the exact total given in the Smith/Traynor transcript - were to be tested with geiger counters to determine if they were radioactive. The note also included instructions that an "intelligence agent cross out any markings on drums and bbls.[sic. - abbreviation for barrels - authors note] and number them serially from 1 to 109 and make note of what was crossed out." The note goes on to say that this recommendation was given to and approved by Lt.Colonel Parsons, General Groves' right-hand man on the military side of the Manhattan Project. And lastly, the

writer of the note had called Major Smith, apparently to report back to him, leading one to believe the note's author may have been Major Traynor.

Was the captured cargo discussed by Smith and Traynor from U-234? The presence of a Mr. "Vance" who was in charge of "U powder," almost certainly determines that such was the case. The documents under consideration and the conversation they detail are from Manhattan Project files and are about men who worked for the Manhattan Project. Using the letter "U" as an abbreviation for uranium was widespread throughout the Manhattan Project. That there could have been another "Vance" who was working with uranium powder - especially "captured" uranium powder - seems unlikely even for coincidence. And the fact that the contents of the barrels listed on the U-boat manifest were identified as containing a substance likely to be used in a nuclear reactor, benzyl cellulose, and that the barrels in the Smith/Traynor transcript and the untitled note - as well as the drums - were tested for radioactivity by geiger counter, certainly links the "captured" materials to no other source than U-234.

The new-found evidence taken en masse demonstrates that, despite the traditional history, the uranium captured from U-234 was enriched uranium that was commandeered into the Manhattan Project more than a month before the final uranium slugs were assembled for the uranium bomb. The Oak Ridge records of its chief uranium enrichment effort - the magnetic isotope separators known as calutrons - show that a week after Smith's and Traynor's 14 June conversation, the enriched uranium output at Oak Ridge nearly doubled - after six months of steady output.[24]

Edward Hammel, a metallurgist who worked with Eric Jette at the Chicago Met Lab, where the enriched uranium was fabricated into the bomb slugs, corroborated this report of late-arriving enriched uranium. Mr. Hammel told the author that very little enriched uranium was received at the laboratory until just two or three weeks - certainly less than a month - before the bomb was dropped.[25] The Manhattan Project had been in desperate need of enriched uranium to fuel its lingering uranium bomb program. Now it is almost conclusively proven that U-234 provided the enriched uranium needed, as well as components for a plutonium breeder reactor.

Chapter Two - The Two Billion Dollar Bet

"A study of the shipment of (bomb-grade uranium) for the past three months shows the following...: At the present rate we will have 10 kilos about February 7 and 15 kilos about May 1." [26]

From a memo written by chief Los Alamos metallurgist Eric Jette, December 28, 1944.

The uranium bomb required 50 kilos by July 24. By mid-May of 1945, as U-234 was being escorted in to Portsmouth, almost two billion dollars had been spent on the Manhattan Project, making it the greatest wager ever to that point in time. The man who threw the dice, and was about to lose it all, was Brigadier General Leslie Richard Groves.

In the course of just three years, using taxpayers' money unbeknownst to them, Groves had built a secret industry that outstripped any other enterprise on earth. He had purchased vast tracts of land in Washington state, Tennessee, New Mexico and elsewhere, engulfing hundreds of thousands, if not millions, of acres. On these reservations he built huge factories that contained the most advanced technology on the face of the earth. He made multi-million dollar deals with many of the globe's top companies - companies like DuPont, Westinghouse, and Raytheon.

To support these contracts and newly constructed facilities, he built whole towns, complete with roads, schools, postal services, banks, unions and everything else necessary to maintain a community. And he manned these municipalities with hundreds of thousands of workers and their families, including many of the greatest intellects alive. No fewer than 13 of the physicists and chemists involved in the Manhattan Project either had already won, or later would go on to win, the Nobel Prize. All of this had been assembled and focused on one task - to make an atomic bomb. Now the effort seemed to be exploding in his face.

The construction of an atomic bomb requires two things: enough fissile material to achieve critical mass and explode, and a trigger to start the explosion. Despite the immense investment, progress was remarkably slow on both requirements. Contrary to presently accepted history, by mid-May of 1945, neither requirement had been obtained. According to recently uncovered information from contemporaneous Manhattan Project documents - enriched uranium production charts and memos on metallurgical progress and other never-before-revealed sources, including first-hand information revealed to the author during interviews with Manhattan Project personnel - the objectives still had not been achieved. And Groves had a third requirement that was about to make the other two points moot. Time was a factor, and it was running out.

Germany, the chief rival in the atomic bomb race according to intelligence reports,[27] - notwithstanding its now-surrendered status - planned to provide its Asian ally, Japan, with an atomic bomb [28] to use in the Pacific. U-234 had not been the only U-boat scheduled to voyage to Japan. [29] At least one other vessel, possibly more, apparently also carried in its belly enriched uranium intended for Tokyo.

Apparently, the race for the atomic bomb was much closer than most would have supposed - possibly even closer than Groves thought. After all, the General had spy Paul Rosbaud, code named Griffin, keeping him informed of German progress and possibly even of shipments to the Island Nation. There seems to have been no such counterpart in Japan to serve Groves as a conduit. If uranium had been sent to Japan, as appears probable, Groves most likely knew through Rosbaud, but what was happening to it in The Land of the Rising Sun he could only guess.

Groves was not pressured by this threat only, he also had to worry about the fact that, should the Allies' war effort survive the German/Japanese conspiracy, in July, Truman, Churchill and Stalin were scheduled to meet in Potsdam to partition the remnants of Europe that the Third Reich had left behind. The result would go a long way toward deciding the balance of power in the post-World War Two Era.[30] Additionally, Stalin had already declared his intent to go to war with Japan in mid-August.[31] The United States and Britain could then expect to share the Asia/Pacific region, as well

as Europe, with Russia; leaving the Communist Bear with a much greater share of the globe than it had earned or that either democracy cared to relinquish. A demonstration of the power of 'the bomb' to end the war with Japan - displaying to the rest of the world that the United States possessed this awful weapon - would establish America as the military leader of all nations; and would certainly impact these negotiations and the resulting socio-political complexion of the modern age.

But here stood Groves, as yet unsuccessful, with the sands of time slipping through his hands. Despite massive, sometimes reckless, always all-out spending; despite playing all the odds, even those with the slimmest chance of winning; despite assembling the greatest braintrust ever brought together in the United States; and even despite Groves' own expansive experience and unquestioned self-confidence, the gamble appeared to be a bust.

Almost \$2 billion to produce just over 100 pounds of fissile material for the uranium bomb and about 30 pounds for the plutonium bomb, and a way to detonate them, had not been enough to meet the deadline. The cost, had the effort been successful, equaled almost \$100,000 per ounce of enriched uranium - in 1945 dollars. While the great effort had been successful enriching uranium and reducing it to its explosive metallic form, it appears that over one-half of the hard-earned material never would see a uranium bomb; it was secretly being used to fuel the huge plutonium-breeding reactors at Hanford, Washington.

The reactors, fueled by the enriched uranium, would produce several orders of magnitude more explosive plutonium than the enriched uranium they consumed; promising quicker, easier, less expensive bombs, and many more plutonium bombs than the single uranium bomb that could have been produced with the amount of enriched uranium consumed in the reactors. The end result for the uranium enrichment effort was that less than half of the enriched uranium metal required for a nuclear device was available by mid-May, according to calculations based on data given in a memo written by top Manhattan Project metallurgist, Eric Jette [32] and with which later information agrees, as do Jette's resulting predictions. Even doubling that rate of output, the program would fall far short of the amount required for a bomb to have been dropped in early August.

And yet the bomb dropped on Hiroshima is known to have been a uranium bomb.

Jette's calculations correspond almost precisely with and are validated by information supplied in Richard Rhodes' book *The Making Of The Atomic Bomb*, in which Rhodes sets the amount of enriched uranium metal available for a uranium bomb by April 1945 as "a near critical assembly." [33] According to Rhodes' calculations, which are based on information recorded at the time by James Bryant Conant, one of the scientific advisors on the Manhattan Project and president of Harvard, 42 kilograms, or 92.4 pounds, of enriched uranium is equal to 2.8 critical masses.[34]

One critical mass therefore, the amount barely available in mid-April with only three months of production time left, is exactly 15 kilograms, or 33 pounds, the amount Jette predicted would be available by 1 May. In theory, one critical mass was all that was needed to make a bomb; but in reality, due to inefficiencies caused by impurities still mixed throughout the enriched uranium, the bomb actually required over three critical masses in order to achieve the level of explosion desired. Robert Serber, who wrote *The Los Alamos Primer*, gives the total figure for the uranium bomb at "about 50 kilograms,"[35] over three times critical mass.

The point is, in mid-April, after almost a year of processing enriched material, because of the demand to use enriched uranium to produce the much more practical and powerful plutonium bomb, the uranium program had barely one-third the processed uranium required to make a uranium bomb.

The uranium bomb option would have been inconsequential with a valid plutonium bomb but it was later discovered that the plutonium bomb could not be detonated efficiently enough to create a successful explosion. Now, with enriched uranium stocks depleted by plutonium demand and the plutonium bomb, in turn, undetonatable, the entire enormous enterprise appeared destined for defeat.

Yet even now, both Groves and his superiors knew that the gamble had been a strategic imperative. To sit on the sidelines of international influence, when America was just coming into its own; to allow fascist, communist or

imperialistic governments to control the destinies of the countries of the world - especially those of free nations - was immoral and inconceivable. The wager was essential no matter how small the chance of success.

For the opportunity even to sit at the table and bet, knowing that the stake was world dominion, Roosevelt had anted-up \$2 billion, and with foreknowledge some say, had allowed Pearl Harbor to be bombed. Thus the United States entered the war for a chance to play the nuclear game. Now the deck almost had been played out and, as is so often the case in war and politics, it appeared there would be no clear winner, only varying degrees of losers.

Even Groves, from the very beginning when he took over the Manhattan Project from Colonel J.C. Marshall in September of 1942,[36] despite all his later efforts, had given the improbable scheme a small chance of success.[37] Marshall had been the Manhattan, New York district engineer for the Army Corps of Engineers. He was assigned to the project shortly after Roosevelt received the famous letter in late 1939,[38] written by Albert Einstein at the behest of two renowned Hungarian physicists, Eugene Wigner and Leo Szilard, that explained the destructive realities of nuclear energy and that the Germans were working feverishly on its unleashing. The letter was delivered personally to the president by economist and Roosevelt confidant Alexander Sachs, who read it to the president aloud in the oval office.

Roosevelt, by his own native genius, seems quickly to have understood the full implications of the development. Before Sachs left the White House that day, the President had established a committee for pursuing nuclear energy.

But despite Roosevelt's quick reflexes, the work moved slowly. Responding to a report by aid Vannevar Bush two years later, in the early Spring of 1942, Roosevelt - who seemed to understand the urgency of the atomic initiative better than most of his nuclear advisors - wrote emphatically, "The whole thing should be pushed not only in regard to development, but also with due regard to time. This is very much of the essence." [39] The President seems to have been the only one who understood the full gravity of the circumstances.

When James B. Conant reported in mid-1942 that Germany might be ahead in the arms race by as much as a year [40] - and despite traditional history there is evidence this was so - impetus was finally given to the program, but it still took until September of that year to recruit Groves.

The colonel who had a decade earlier overseen the construction of the great symbol of United States military might - The Pentagon - had been made a brigadier general responsible for the development of the weapon ultimately destined to guarantee that power. Groves' response to learning that the project for which he was being recruited could single-handedly win the war speaks volumes about the size of his ego and the extent to which his experience building the Pentagon and handling a \$10 billion budget as the number two man in the Corps of Engineers had alienated him from feelings of mere human dimensions. He said simply:

"Oh." [41]

The one thing Roosevelt didn't need to worry about with Groves was wasted time. The general went to work immediately, criss-crossing the country to familiarize himself with the theory and processes and all of the research and development programs presently in progress. What he found was discouraging.

First, uranium, at least at the time, was rare and relatively expensive. Experts in the United States knew of only a few light deposits of the very heavy element but were doing little to mine it. Up to that point, there had not been a lot of use for uranium except in ceramic glazes. To get what it needed, the Manhattan Project would have to go outside of the sovereign borders of the United States, or so it seemed.

In a quirk of circumstance, over 1,000 tons of raw uranium ore had been sent to New York and was sitting in open steel drums in a warehouse on Staten Island.[42] The uranium had come from what Groves later identified, wrongly, as the richest uranium reserves in the world - those of the Belgian Congo - by way of Belgium and the Brussels-based company that owned the mines, Union Minière. Union Minière had provided rare-earth minerals for radiation studies performed by the famous French Curie family.

Groves' misstatement that the Belgian Congo held the richest uranium reserves is the lead-off in a long litany of hidden or half-truths, shaded assertions and outright lies later employed to paint a public picture decidedly different than those events that actually transpired. The details of this deception will be outlined later. Simply put, the mischaracterization is a single brushstroke - among a multitude - that makes up part of a larger picture created after-the-fact to hide the evidence that the Third Reich already had in its possession far more raw uranium than it would ever need for its purposes; and that it also held within its hands total control of the largest and most high-grade uranium ore deposit in the world, that at Joachimsthal, Czechoslovakia.

The president of Union Minière, M. Edgar Sengier, having been approached previously by agents of the German government to buy the valuable mineral stocks, carefully avoided closing a deal with the German emissaries. Sengier knew of uranium's ultimate possibilities. Through his dealings with the Curies he had been invited by Frederic Joliot-Curie in 1939 to help build an atomic bomb in the Sahara desert, according to General Grove's book, *Now It Can Be Told*.^[43]

Such a fascinating revelation from Groves demands a question: Build an atomic bomb for whom? Certainly Joliot-Curie was not planning it for personal world dominion. He must have known such a project could only be accomplished at enormous cost and effort if it were possible at all. Given later accusations regarding Joliot-Curie that show every indication of having been true, and despite his reported membership in the French resistance, it is possible that he planned on consorting with the Germans. At any rate, Sengier appears to have declined that offer, as he presently did the agents' bid for the bulk uranium stores.

Instead, right under the Germans' noses, he had shipped the uranium to the United States for safe keeping. Once having made such a prudent and noble move at the potential cost of the loss of great profit for himself and his company, not to mention the threat to his physical safety that defying the Nazis could mean, he tried to make a deal with the United States to cover his lost investment. But the old Manhattan Project regime, for whatever reason, had not responded.

Groves, on the other hand, now snapped it up. Over twelve hundred tons of uranium might be enough to harvest the 110 pounds of U235 needed to make a bomb. But raw uranium ore is only the basest form of uranium. From the ore, full of a variety of polluting elements and minerals, pure uranium must be refined; a considerable process in and of itself. Then the real challenge begins: Uranium atoms, like most elements, exist in various versions called isotopes. These different versions of the atom contain the same numbers of protons and electrons, which define the element and create its characteristics, but have a different number of neutrons, which, while not changing the element's characteristics, alter the atom's structure and weight.

The vast majority of uranium is the isotope identified as U238 (U for uranium, 238 for this particular isotope's atomic weight), which constitutes 99.3 percent of all of the uranium on earth. The remaining less-than-one percent is mostly U235 - the fissile form of uranium. Unlike the more balanced lattice-work of the U238 nucleus, the unbalanced structure of a U235 nucleus is unstable. When the nucleus is struck with enough force by a passing neutron or other sub-atomic particle, the nucleus will fracture and divide, leaving two sub-uranic elements behind, while at the same time releasing additional neutrons along with a portion of the energy that had kept the uranium nucleus bound together. This nuclear energy is by far the strongest force known to man and, although because of each atom's minuscule measurements the energy released seems like an infinitesimal force, actually, the power discharged is proportionally enormous.

To appreciate the truly diminutive size of an atom, journalist Chapman Pincher has given the following scale against which the minuteness of atoms can be measured. Envision a straight pin magnified so large that its head lay in London, England and its point terminates in the country of Bangladesh, on the far side of India - a distance covering approximately one-third the circumference of the earth. The atoms of such a needle would be the size of golf balls.[44]

Yet according to real-world examples cited in Richard Rhodes' book, *The Making of the Atomic Bomb*, the strength of the nuclear force in a single atom contains enough energy to make a grain of sand jump, a mass

hundreds of thousands if not millions of times greater than that of an atom. Rhodes adds that there is enough power in one cubic meter of uranium to lift one million million kilograms (or 2.2 million million pounds) 27 miles into the air. Put another way, one pound of uranium can produce nine million kilowatt hours, for which New York City would pay about \$1.2 million.

Almost as soon as the first atom was split, physicists the world over realized that if these great forces could be systematically released and controlled in large quantities of atoms, an enormous source of energy would be made available. On the heels of this realization came the revelation that if this energy could all be released in an instant, a super powerful explosion would occur, the likes of which had not been experienced on earth.

Calculations and experiments soon proved that in properly prepared uranium, for each neutron that split a nucleus, of the many neutrons that would be released an average of two-and-a-half would hit and split other nuclei, which would split yet two more each, and so on - creating a chain reaction that theoretically could sustain itself until the nuclear fuel ran out. This knowledge, along with the fact that Nazi Germany was the first to uncover these cosmic secrets, is what caused Einstein, Szilard and Teller to write their famous letter of warning to Roosevelt.

The great challenge of this task for all warring factions was in accumulating enough uranium that was predominantly pure U235, and whose atoms were closely enough positioned together, so that released neutrons could reach the surrounding U235 atoms and create a chain reaction. This meant that a method had to be found to virtually pluck U235 atoms one at a time from the average of 140 U238 atoms surrounding each one of them, and gather them together in a single body. Given the acutely minute, super-submicroscopic media to be meddled with and the overwhelming ratio of U238 to U235, the prospects were surely daunting.

When Groves had been given the assignment to oversee this Draconian task in the fall of 1942, however, he had nonetheless been told by his superior that the project was well in hand. He was stunned to find upon his review that so little had in fact been accomplished.

For starters, almost no one in the United States had been able to technically devise how to separate U235 from raw uranium. Thus far everything was theory - with one small exception. Nobel Laureate Dr. Ernest Lawrence at the University of California in Berkeley was just in the process of developing an electro-magnetic mass separator that, using mammoth-sized magnets and hundreds of thousands of volts to power them, could separate U235 from U238 to at least a nominal degree of enrichment. Groves presumably was encouraged when he heard about the breakthrough.

Traveling to Berkeley, the General entered Lawrence's laboratory and was brought to where he could see the enriched uranium product - he was led to a microscope. Undoubtedly dumbfounded and disappointed, Groves bent over the lens to see a spec of uranium that measured 75 micrograms of only 30 percent enriched uranium.[45] For comparison, a dime weighs 2,500,000 micrograms. He knew by this time that the amount needed for a bomb was still a matter of theory but that estimates ranged anywhere from five pounds to 600 pounds (Manhattan Project scientists would ultimately conclude the bomb would need to be about 110 pounds) of from 80 to 90 percent enriched material. Compared against the meager offering he was staring at through the microscope lens, the requirement to produce any and all amounts of material between those few micrograms and the roughly calculated critical quantities made the chances of achieving bulk production amounts in a usable time frame so astronomical as to be meaningless.

Despite Groves' disappointment, the perennially optimistic Lawrence assured the General that what he had seen represented great strides, and that from this feeble foundation he could build a device capable of separating uranium in mass production quantities - tens of grams at a time. Groves was nonplused. They were still talking in fractions of ounces. But Lawrence's process was the best chance he had - for everyone else so far, any kind of serious isotope separation had been impossible.[46]

While in Berkeley, the new-formed cradle of American nuclear research, the General also took the time to visit several other researchers, experimenters and theoreticians, and this proved to be fortuitous. He met J. Robert Oppenheimer, the man Groves would eventually choose to direct the laboratory that would develop the United States atomic bomb. Robert

Serber, a close friend and co-worker of Oppenheimer's, in his preface to the post-war publication of *The Los Alamos Primer*, which he wrote at Oppenheimer's request to orient newly arriving Manhattan Project personnel into the program, described Groves' ego-emanating entrance the first time they met.[47] Apparently Groves had no more than entered the room, when he removed his jacket and handed it to a colonel he had "in tow," and curtly ordered the high-ranking officer to find a laundry and get his tunic cleaned.

Oppenheimer, on the other hand, was quite a different personality. He was young, ascetic, wealthy, and seemingly frail, although later events would prove him to be a glutton for physical, psychological, emotional and intellectual abuse. Oppy, as he was affectionately known by friends, was scientifically and clinically critical while at the same time embracing Far Eastern metaphysical mysticism. The paradox made him an astonishing choice for project director. The greater half of the astonishment was that Oppy was a theoretician, not an experimentalist. The new laboratory was, of necessity, going to be nothing if not overwhelmingly experimental.

Oppenheimer's lack of experimental experience caused many who coveted the position, or who otherwise had what appeared to be legitimate concerns, to cry foul. Groves would have none of it. He had quietly grasped Oppenheimer's unique genius, his brilliantly quick analytical and intuitive facility and a talent for exciting people about the work, and was not about to let him go.

What concerned Groves more was the future lab director's leftist connections. Not that Groves felt they were much of a hindrance to Oppy's doing the job, but security checks had to be performed and they soon revealed that not only had Oppenheimer once been a registered member of the American Communist Party, but his wife, brother and ex-fiancé, as well, were presently members or had been members at one time.

The endless pursuit by military security to rectify this apparent security breach kept Groves almost continually in a position of having to protect his chief deputy. His willingness to do so is surely a strong endorsement of Groves' belief and confidence not only in Oppenheimer but in his own extraordinary ability as a judge of people. The results Oppenheimer brought

forth stand as an undeniable testament to the General's sense of 'good horse flesh.' What is most remarkable is that although he had considered others, Groves was 99 percent decided Oppy was his man after only one or two meetings.

A month later, in November 1942, Groves and Oppenheimer, with a handful of others, were at a boys ranch standing atop a 7,200-foot-high plateau in New Mexico. Oppenheimer, who owned property in New Mexico and loved the vast, scenic expanses of countryside, had suggested the location over several rivals, some close by, others as far away as Utah and Washington state. As they stood under the cottonwood trees - for whose Spanish appellation the boys school had been named, Los Alamos - Groves consented to purchase the property as the sight for America's new atomic bomb laboratory.[48]

A full four months after that, in the end of March 1943,[49] the small group would finally return, accompanied by a nucleus of scientists that would ultimately grow to be one of the greatest collections of intellects concentrated on one task ever: Enrico Fermi, Emilio Segré, Hans Bethe, Otto Frisch and many others, all Los Alamos personnel during the war, were just a few of several scientists at the project who had already won or would go on to win the Nobel Prize and other top awards of science. Along with them they brought equipment commandeered from laboratories across the United States [50] and a support force of almost 5000 people, many with their families.

Despite the thin chance, and so far almost non-existent success, that the American effort had to achieve separating uranium isotopes, General Groves made an early and full commitment to the project. Before he had pinned the new general's star on his collar (an inducement to get him to accept the Manhattan Project assignment over his preference to serve in a theater of war), before he even ran to Berkeley to find what level of scientific talent was available, Groves signed the directive that began the purchase of 59,000 acres of mostly undeveloped land in Eastern Tennessee. The complex built there would soon come to be known as Oak Ridge, and it would house most of the technologies tried - many of which would fail or

only achieve nominal success during the war - to enrich production quantities of bomb-grade uranium.[51]

On the site eventually would be established a gaseous diffusion isotope separation plant what would utilize hundreds of thousands of stacks of pipes in an all-but-failed effort to enrich uranium before the war was over. This plant would enclose almost 42 acres under a single roof and cost one-half a billion dollars, the greatest single expenditure of the war-time program. A liquid thermal diffusion plant under the operation of the Navy would be constructed as well. By far the most successful form of isotope separation would be the electromagnetic isotope separators pioneered by Ernest Lawrence. Groves would one day brag that every gram of U235 produced for the Manhattan Project had been processed through Oak Ridge's magnetic isotope separators - called calutrons, after the California State University (Cal. U.) at Berkeley, where it was developed. But even with the calutrons, none of these processes were close to being viable at production-level quantities at the end of 1942. And the famous claim that all of the uranium enriched passed through the celebrated calutrons during that process has now become questionable, based on recently discovered information.

Five days less than a year after the bombing of Pearl Harbor, on December 2, 1942, Italian émigré physicist Enrico Fermi and his research team, working in an old squash court under the University of Chicago's Stagg Field grandstand, opened another door leading to an atomic bomb - they produced the first man-made self-sustaining nuclear chain reaction.[52] The experimental reactor pile, built of over 400 tons of graphite and uranium, provided not only proof that a slow chain reaction could be achieved and controlled, but the means to further test the theory that uranium bombarded by neutrons will absorb those neutrons until it metamorphs into a new and previously unknown element - which the theorists called plutonium.

Plutonium, besides being the first man-made element, would fission as easily as U235. The bomb makers counted this a blessing. And plutonium as an element all its own, rather than an isotope of one, had chemical characteristics that were different from other substances.[53] By finding these differentiating properties, the plutonium could then be separated from

its parent, uranium, by chemical means, a far less expensive and comparatively easy process than the impossibly demanding physical separation procedures required to harvest one atom at a time, as was necessary to enrich uranium. There was now a second, much better, option for developing an atomic bomb.

Hopes were high. Everyone from Groves and Oppenheimer to Fermi and Lawrence were enthused over the plutonium prospect.[54] In fact, the whole object of creating a reactor pile changed from creating heat to make steam for industrial power to breeding plutonium for a bomb. Groves immediately went to work establishing a plutonium pilot plant at Oak Ridge, as well as beginning the procurement of property in the state of Washington for the purpose of constructing a series of plutonium breeding reactors.

The researchers, however, soon found problems with the plutonium option. Previous plutonium breeding experiments had been performed in a cyclotron that could bombard target uranium with only very small amounts of neutrons. The result was the expected transmutation of U238 to plutonium 239 (Pu239). The comparative flood of neutrons released in a chain reacting pile, however, placed the parent U238 awash in stray neutrons. While some of the U238 absorbed one neutron to become Pu239, many of the nuclei absorbed two neutrons, transmuting to Pu240, a highly spontaneous fissioning isotope of plutonium.[55] This would have been good news except that the spontaneous fission rate of Pu240 is three times faster than that of U235 or Pu239. The latter two isotopes fission slowly enough that, theoretically, to assemble a critical mass one needed simply to shoot one subcritical piece of material into another piece. The total of the two pieces came together to achieve critical mass at about 3,000 feet per second - roughly the velocity of a high-powered cannon. Voile, a nuclear explosion.

Pu240, on the other hand, releases its nuclear energy, in the form of extremely high temperatures, so fast upon fissioning that the resulting burst of heat blows the surrounding atoms away. The probability that released neutrons will collide with, and therefore split, other neutrons is greatly reduced - thus the chain reaction ends before it has ever begun.

Groves and his cadre of scientists now had a challenge creating a plutonium bomb as perplexing and problematic as the original isotope separation assignment. They must find a way to trigger a critical assembly, in other words, to move multiple blocks of matter at velocities no human, for any reason, had ever envisioned attempting, and to move them in less than 1/3000th of a second. The plutonium option was now just as much a long shot as the original uranium bomb.

Chapter Three - Uranium

"Oh what idiots we have all been."

Niels Bohr, physicist, Nobel Prize winner, upon hearing of the splitting of the atom.

Until 14 May, 1945, the day U-234 surrendered to the United States at sea, Germany had always held the lead in the race for the atomic bomb - even before anybody knew there was a race being run. Way back in 1789, 150 years before the pernicious purpose of uranium was conceived, Martin Klaproth discovered this last, and heaviest, of the elements found in nature. Appropriately, given later physics history - or maybe inevitably - Klaproth was German. In the century and a half between Klaproth's discovery and the splitting of the first atom - a uranium atom - little happened with the element. In the small amounts that it could be found, uranium was considered relatively rare, although it has since been discovered in varying quantities almost everywhere on earth. Prior to the effort to build a bomb, however, uranium was used almost exclusively as a pigment in ceramic glazes; no one could devise any other practical use for it. But when the first atom was split at the end of 1938, the whole world changed.

Advances in physics, particularly the effort to understand the make-up of the atom, had physicists and radiochemists across the globe experimenting with uranium, the natural world's largest atom. As a result, the first atom was split, quite by accident, by Otto Hahn and Fritz Strassmann, two Germans, at the Kaiser Wilhelm Institute of Physics in Berlin.

Hahn and Strassmann - both radiochemists not physicists - did not immediately realize what they had achieved. They had been bombarding uranium with slow neutrons expecting its transmutation to other isotopes of uranium or other heavy elements. But the result of their experiment showed, along with isotopes of uranium, of which U238 is the most common,

evidence of traces of barium were present as well, which has an atomic mass slightly larger than half of uranium's mass.

At first, neither scientist could reckon how the atomic weight had been cut in half. The cleaving of an atom, with its powerful internal force holding it together, was considered impossible and splitting the atom had never crossed their minds. The pair assumed they had not carried out their experiments correctly; but careful checks using control samples they knew were pure proved they had not contaminated the experiment with material already containing barium. Only then did they consider that the impossible may have happened. Hahn wrote his former co-worker, Lise Meitner, an Austrian-born Jew who, now in her 60s, had over 40 years experience in radiochemistry and a native genius for diagnosing chemical and nuclear puzzles.

On Christmas Eve, while contemplating the remarkable events written to her in Hahn's letter during a holiday at the seaside in Sweden, Meitner was visited by her nephew and fellow researcher Otto Frisch. Frisch would later be the one who coined the term 'fission' [56] - borrowed from the microbiology lexicon and which describes the dividing of living cells - as the moniker for the splitting of atoms. He would also shortly immigrate to the United States and perform the famous, and very dangerous, critical mass experimental studies on uranium at Los Alamos known as "tickling the tail of the dragon."

Meitner and Frisch discussed how it could be possible that barium should come from uranium, and in the course of considering several possibilities contemplated the puzzle in the light of Niels Bohr's new model of the nucleus - not a collection of tightly bound neutrons and protons, but "freely" bound neutrons and protons. They reasoned that, although the nuclear force holding these components together is undoubtedly the strongest on earth - even though active for extremely small distances only - each proton in the nucleus contains a small electrical force of its own that counters, to a degree, that nuclear force. As the nucleus of each element in ascending order contains one or more additional protons than the previous element, by the time uranium - the natural element with the most protons of all, at 92 - is reached, the countering force of the cumulative protons is

barely less than the total nuclear force. The scientists realized that this would explain why there are no more natural elements beyond uranium - because the accumulated electrical force of the extra protons in an atom larger than uranium would counter the atomic force to a point where the nucleus is no longer able to hold itself together. Any elements beyond uranium must have disintegrated to other elements earlier in earth's history.

But the uranium nucleus holds together barely, the opposing forces causing the sub-nuclear particles to float "loosely" around one another in a liquid-like form. The unstable geometric construction of a U235 atom, particularly, when struck by the energy of a neutron, may then start "wobbling," possibly becoming narrower in the middle, allowing the nuclear force in each of the two outer lobes to take control and parse off the lobes into independent, non-uranic spheres of their own - one of them barium.

Thus Meitner and Frisch had explained, and therefore validated, Hahn's and Strassmann's discovery - and set in motion with their explanation the fearful, surreal absurdity that would become man's future. Meitner also calculated that the nuclear reaction after the split caused by the repulsion of the protons in each nucleus pushing away from each other at one-thirtieth the speed of light, would generate about 200 million electron volts of energy per atom.[57] In comparison, the strongest of chemical reactions such as a dynamite explosion, produces a very paltry five electron volts.

Hahn had written not only Lise Meitner on that fateful December night, he had also contacted Paul Rosbaud, the editor of Germany's foremost scientific publication, *Naturwissenschaften*. [58] Rosbaud would soon come to be known in Allied intelligence circles as The Griffin, the code-name assigned him upon joining the ranks of Germans spying for the Allies, and would from beginning to end of the war provide constant updates on the progress of Germany's atomic bomb project, including Ardenne's and Houtermans' efforts. Many of Rosbaud's activities are recorded in Arnold Kramisch's excellent book, *The Griffin*.

Presumably, General Groves would have received Rosbaud's reports through the United States/British intelligence master, Sir William Stevenson, and therefore known on an ongoing basis what was the

condition of his nemesis' program. Statements the General made during the war indicating that he often thought the enemy was a year or two ahead of the United States' program can, therefore the author believes, generally be considered accurate. If this is the case, assertions made by General Groves after the war indicating that he had been wrong in this conclusion were probably designed to divert attention from the German isotope separation program. The idea being that if the existence of the German uranium enrichment program could be hidden, then the cover story could be established that Germany's atomic bomb effort consisted only of failed efforts to create a reactor pile to breed plutonium. This will be reviewed in more detail in a later chapter.

On Hahn's request, Rosbaud had agreed to hold space in the next issue of his journal for an upcoming paper Hahn promised to prepare by print time. The article not only ran in early January 1939, quickly spreading the news throughout the global scientific community, but Frisch returned to work with Niels Bohr in Copenhagen after his Christmas holiday with Meitner and told 'The Great Dane,' as he was affectionately called, of their theory. [59] Bohr responded before Frisch had hardly finished explaining, gasping, *"Oh what idiots we have all been! Oh but this is wonderful! This is just as it must be."*

The Great Dane left Denmark within a week of this revelation on a previously-planned trip to the United States to work for a short period at the Institute for Advanced Study. Once there, he was instrumental in disseminating the news to the rest of the world. Then the new discovery's ultimate outcome was calculated - that a nuclear chain reaction might be created. Szillard and Teller, quickly recognizing the unthinkable possibilities, contacted Einstein, who wrote his famous letter to Roosevelt in response to such a prospect.

The chain reaction conclusion also made Hahn consider an action he had never before contemplated. Upon realizing that the likely outcome of his discovery would be the loss of tens- or hundreds-of-thousands of lives - possibly millions - Otto Hahn seriously considered taking his own life.[60]

The taking of one life would have been a small matter and a futile action, however. The door had been opened and could never be closed again.

Despite later and persistent claims that Germany put little effort - and that erring - into the development of an atomic bomb, quite the opposite actually appears to have occurred. As a nation with a disciplined, precise and loyal nationalistic character and a tradition of cultivating the ultimate in technology, under the rule of a dictator with a fetish for innovative armaments and a commitment to using them, Germany was already on the verge of waging war using the most technically advanced fighting machine ever. The airplanes, tanks and submarines of Blitzkrieg were unsurpassed and it would be years before the Allies equaled the armaments of the Third Reich. During the course of the war, Hitler added rocketry, silent electric torpedoes and jets to his arsenal, none of which were matched by any other belligerent nation during the course of the conflict. In truth, on the whole, German weaponry was probably never equaled during the war: Many experts maintain that Germany lost World War II directly because of strategic blunders committed by Adolf Hitler and little else.

With a superior technical culture, a lead on the field, and many of the best scientists available - all at the behest of a madman well-established to have a penchant for ingenious and decisive weaponry - it certainly would be expected that Germany would be running hard in the nuclear arms race and would break out of the gate first. The idea accepted wholesale in the traditional history, that German efforts to produce the deciding weapon of the war, an atomic bomb, were vapid, poorly executed, uninspired projects, runs wholly counter to the character of the regime and the Germanic race, which to this day, in a world of global parity, is still looked up to as a technical leader of the world.

According to author/historian David Irving, in his book, *The German Atomic Bomb*, the post-war criticism of Germany's supposedly insipid effort to create an atomic bomb is both inaccurate and unwarranted.[61] And Irving adds that those who spread the misinformation should have known better; they knew the story and had all of the documentation. Far from the official story of a handful of half-hearted German scientists working on an impotent reactor pile intended, but failing, to breed plutonium - as goes the story promoted by General Groves and the Manhattan Project's intelligence arm, Alsos (Greek for 'grove,' Alsos was the codename given the Manhattan Project's enemy information gathering function) - Irving states that some 50

German scientists [62] toiled night and day throughout the war, in both plutonium breeding and uranium separation efforts, many of which achieved high levels of success.

By the Summer of 1939, scant months after Hahn's and Strassmann's discovery had been published, the German Army had established a uranium project in Gottow, near Berlin, with Dr. Kurt Diebner at the head.[63] By the time war broke out, Germany was the only country studying the use of atomic power for military means, and it pushed forward with vigor. By contrast, the United States efforts stalled and were not to be purposefully pursued until General Groves was appointed head of the program more than two years later, near the end of 1942.

A first secret conference on atomic power was held in Berlin on September 16, 1939.[64] Most of the Reich's top nuclear scientists soon afterward were inducted into the army - an action Groves would later seriously consider for the American program but was convinced otherwise by Oppenheimer -and assigned to laboratories throughout the Fatherland to study nuclear fission for military uses. The first laboratory, in Dahlem, near Berlin, was established and called 'The Virus House,'[65] a name concocted as a ruse to cultivate an atmosphere of fear around the facility and thus drive off unwanted observers.

Despite later assertions, the Third Reich very soon had on hand copious amounts of raw, as well as very highly refined, uranium, and controlled a great deal more - almost a limitless supply for its needs. The first ton of "extremely pure" uranium oxide was delivered in the first weeks of 1940. [66] This had already been refined from the raw uranium ore and was, for all intents and purposes, ready to be used for experimentation - or for enriching to bomb grade as soon as the technology could be developed.

From June of 1940 to the end of the war, Germany seized 3,500 tons of uranium compounds from Belgium - almost three times the amount Groves had purchased from Union Minière - and stored it in salt mines in Stassfurt, Germany.[67] Groves brags that on 17 April, 1945, as the war was winding down, Alsos recovered some 1,100 tons of uranium ore from Stassfurt and an additional 31 tons in Toulouse, France, as well as eight tons of refined oxide from the Stassfurt mines.[68] And he claims that the amount

recovered was all that Germany had ever held, asserting , therefore, that Germany had never had enough raw material to process the uranium either for a plutonium reactor pile or through magnetic separation techniques.

Obviously, if Stassfurt once held 3,500 tons and only 1,130 were recovered, some 2,370 tons of uranium ore was unaccounted for - still twice the amount the Manhattan Project possessed and is assumed to have used throughout its entire wartime effort - and a quantity certainly far in excess of the amount Germany would have used for experimental needs. The material has not been accounted for to this day.

Such copious quantities of this little-used material could have been employed virtually nowhere else, if not in full-scale atomic bomb production processes - as was the case with the United States using comparably colossal amounts in its enrichment efforts.

As early as the Summer of 1941, according to historian Margaret Gowing, [69] Germany had already refined 600 tons of uranium to its oxide form, the form required for ionizing the material into a gas, in which form the uranium isotopes could then be magnetically or thermally separated or the oxide could be reduced to metal for a reactor pile. In fact, Professor Dr. Riehl, who was responsible for all uranium throughout Germany during the course of the war, says the figure was actually much higher.[70] In addition, the Nazi program was extracting one ton per month of uranium oxide from separate ore stocks left over from a private commercial venture following a previous extraction of radium to be used in German toothpaste!

To create either a uranium or a plutonium bomb, at some point uranium must be reduced to metal. In the case of plutonium, U238 is metallicized; for a uranium bomb, U235 is metallicized. Because of uranium's difficult characteristics, however, this metallurgical process is a tricky one. The United States struggled with the problem early and still was not successful reducing uranium to its metallic form in large production quantities until late in 1942.[71] The German technicians, however, true to their whiz-kid reputations, by the end of 1940 [72] had already processed 280.6 kilograms of uranium into metal, over a quarter of a ton.

Dr. Werner Heisenberg headed the plutonium bomb effort for Germany. As with the United States program, the Germans early had realized the benefits of a plutonium bomb over a uranium explosive.[73] They knew plutonium could be bred from uranium and separated chemically much easier, faster and less costly than the isotopes of uranium could be separated from one another. In addition, because the plutonium fission process was three times more powerful than uranium's, theoretically, to make an equal-size bomb only one-third the amount of plutonium was required.

Heisenberg's efforts ran into a roadblock, however, when, in 1940, his co-worker Dr. Walther Bothe seriously miscalculated the neutron absorption rate of graphite,[74] which the researchers thought to use as a moderator to prevent any experimental chain reaction from becoming ungovernable and causing a meltdown. The error would prove to have a profound impact on the success of the German plutonium project. In want of an alternate moderator, the scientists turned to deuterium oxide [75] - heavy water - an isotope of common water but with an additional neutron. The new requirement for heavy water, a rare substance not found in nature but requiring long amounts of time to process, would ultimately resign the German plutonium effort to - not failure, a chain reaction was eventually achieved - but to second place behind the American plutonium project.[76]

The carbon miscalculation combined with the shortage of heavy water constituted the failure of the Germans to build a plutonium bomb, which proved later to be the perfect screen behind which General Groves was to hide Germany's other atomic bomb effort, uranium isotope separation. As seems to have happened at almost every serious juncture, the two nations' programs appear to have followed parallel thinking and parallel processes. But General Groves has buried the history of the German uranium enrichment effort. Desiring after the war to destroy the evidence of German uranium isotope separation for reasons to be reviewed later, the General de-emphasized the Nazi uranium enrichment effort until its historic profile was small enough to be hidden safely behind the failed plutonium picture.

General Groves does not appear to be the only person after the war to distort the facts of this episode to suit his own purposes. Professor Heisenberg and others, purportedly desiring to divest themselves of what

they said was the undeserved stigma of working on an atomic bomb for the Nazis, but in reality desiring to hide their failure to build a nuclear reactor despite great and earnest efforts, decided to inculcate the fantasy, as well - and successfully did so, possibly in collusion with Groves.

Heisenberg later contended that he and others of his staff had innocuously but bravely resisted their fascist government. He insisted that he did not believe at the time the making of an atomic bomb to be a possibility at all, but had acted as though it were in order to keep the Nazis happy and distracted.[77] The professor assured those who would listen that he had been resisting and subverting the objectives of the Nazi regime by monopolizing the invaluable services of some of the Reich's greatest men of science, who might otherwise have been forced to put their efforts to use for Hitler in projects more productive to the Führer's pernicious purposes.

In reality Heisenberg, like most scientists of his bent and professional stature, not only could not resist the pursuit of his science for the sheer inducement of discovering what lay around the next cosmic corner, but he did indeed believe a nuclear blast initiated by man was possible. He had admitted to Manfred von Ardenne [78] and to Niels Bohr, before the latter had escaped Denmark upon its occupation by the Nazis, that he thought an atomic bomb was possible [79] - even though Bohr, himself, at this time, did not believe such an explosion would ever be achieved. Heisenberg tried to explain away this statement after the war as having been misunderstood by the Danish Nobel Laureate; but the Great Dane was certainly convinced he had understood correctly what had been said.

Furthermore, Dr. Heisenberg was in the forefront from February to June of 1942, in an effort to get party leadership to more fully appreciate the value that atomic explosives could serve in the war.[80] In June, he estimated a bomb could be built in as little as two years.[81]

While developers of the American plutonium project would realize relatively late-in-the-game that they had a problem with triggering the plutonium bomb, and up to that time had given the plutonium program their prime effort and resources, serious doubts about the success of the German plutonium program came early because of the heavy water crisis, forcing the Nazis from almost the very beginning to concentrate their efforts,

resources and expectations on isotope separation to enrich uranium. By virtue of this fact alone, one would expect that the German isotope separation program would have been more successful than the plutonium effort, and would not have been left completely unpursued, as is asserted.

At about this time, in mid-1942, American James B. Conant, one of the civilian administrators of the Manhattan Project and a personal confidant of Roosevelt, reported to the president that the Germans "might be ahead of us by as much as a year." [82] Considering British spy, Paul Rosbaud's, position in the midst of the German effort, one can assume that Conant got this estimate from good sources.

In fact, this estimate may have understated Germany's lead. By this time, Germany already had at least five, and possibly as many as seven, serious isotope separation development programs underway. From among these devices, three very innovative technologies were being pioneered, beginning with Dr. Erich Bagge's "isotope sluice" and a similar machine constructed by a Dr. Korsching. Before the middle of 1944, Bagge's isotope sluice would enrich uranium on a single pass to four times that reported in the United States using gaseous diffusion. [83] Gaseous diffusion is supposed to have saved the bomb enrichment program in the waning days of the American separation effort by providing needed, partially enriched, feedstocks to Lawrence's beta calutrons in the final hour. (Oak Ridge records discovered by the author and reviewed later in this book, however, contradict this assertion.) While Oak Ridge's first-phase production calutrons produced only partially enriched material, raising the U235 concentration from .7 percent to around 10 to 12 percent, Bagge's experimental isotope sluice alone had yielded 2.5 grams of "much enriched" uranium. [84] If a production quantity version of the isotope sluice was ever actually built, the yield was probably significantly higher than the United States' output.

Had the Germans actually enriched uranium on a large-scale basis, and there is ample evidence they did, they may have used a multi-stage technique. Passing already enriched uranium through enrichment processes a second or third time to further increase the level of U235 concentration was a procedure used by the American effort to bring enrichment levels up

into the high eighty and low ninety percentiles required for a bomb. One may assume that the German effort followed a similar obvious path, as so often happened between the two programs, and that the product of the isotope sluice - or any of the other separation technologies - might therefore have been used as feedstocks for one of the other four separation techniques.

The isotope sluice was not the strongest of the Nazis' separation efforts. A stronger performer was the centrifuge, and then its progeny, the ultracentrifuge. A special alloy called 'Bondur' had already been developed in 1941 specifically designed to handle the harsh, corrosive uranium compounds used in the ultracentrifuge.[85] The United States' isotope separation effort, on the other hand, struggled to find a similar material that would serve well against the corrosive uranium gases.

By May 1944, compared with American production efforts that at their best resulted in enriching uranium from its raw state of .7 percent to about 10 to 12 percent on the first pass, the first German experimental ultracentrifuge succeeded with enriching the material to seven percent.[86] The experimental result was less than American production efforts and what had been predicted by its German inventors, but it was a good showing in its first experimental outing compared to what the Manhattan Project would produce from its already-tweaked production model calutrons.

Ultracentrifuge output was so impressive, in fact, that following its very first experimental run, funding and authority were established to build ten additional production model ultracentrifuges in Kandern, a town in the southwest of Germany far from the fighting. When Allied bombing became continuous in the north, many separation processes had been moved south; Bagge's isotope sluice went to Hechingen and the 10 ultracentrifuges went to Kandern, located near the juncture of the borders of Germany, Switzerland and France. The Nazis were now committed in a big way to ultracentrifuge production - and therefore to enriching uranium.

True to form, however, Groves once again warped the truth, downplaying the production plants by mentioning only that "U235 separation experiments" were being conducted in Celle and Freiburg [87] - never anything of the ten ultracentrifuge production plants being built near the

latter city or of Ardenne's efforts at Lichterfelde. Despite such subjugation of the truth, David Irving, in his book *The German Atomic Bomb*, identifies what, at least for a time, were thought by the Allies to be fourteen isotope separating facilities being built in the area.[88] Groves himself admitted concern that these plants were being erected to enrich uranium.

According to Groves, he saw patterns similar to Oak Ridge in these plants; but quick intelligence analysis suggested the facilities were crude and inefficient factories for synthetically converting shale to oil. Such a revelation hints at their actually being a cover for nuclear weapons activity. After all, synthetic processing was the cover given the buna plant at Auschwitz. And there appears to have existed a "gentlemen's agreement" between I.G. Farben and Allied forces [89] not to bomb synthetic processing plants. Despite the "shale oil" plants' seeming inconsequence, as ultimately described by Groves, compared to the important schedule of non-nuclear strategic targets needing attention, Allied bombers were diverted from some of their important missions to destroy the chain of plants. Surely the bombing was counter to the "gentlemen's agreement" unless there was something that justified their destruction beyond the fact they were allegedly synthetic processing plants.

The converting of shale to oil is a synthetic gasification process pioneered by I.G. Farben and its technology is in many ways similar to that of producing synthetic rubber, also called buna. Given events related later in this chapter and elsewhere, it would not be surprising to find that these plants had, indeed, been enriching uranium.

Even the impressive successes of the ultracentrifuge do not match up to the "most far reaching" achievements attained in isotope separation by Baron Manfred von Ardenne. Ardenne and his associate, Fritz Houtermans, as early as 1941, had already calculated the critical mass [90] of U235 and had begun construction of "a magnificent laboratory" underground - safe from the bombing of Allied airplanes - in Berlin Lichterfelde.[91] The laboratory contained a two million-volt electrostatic generator and a cyclotron - at the time there was only one other cyclotron throughout the Reich, that of the Curies, which had been commandeered in France.

By April 1942, Ardenne also had in his laboratory a completed magnetic isotope separator [92] not unlike the calutrons of Ernest Lawrence, which General Groves would not deploy at Oak Ridge for another year-and-a-half. Ardenne had designed the separators in 1940, barely on the heels of the discovery of a possible fission explosion. And so, supplied with his million-volt generator to provide the copious amounts of power needed to operate the magnetic separator, he seems to have been ahead of everybody else in the field of uranium enrichment. In addition, the ion plasma source Ardenne had designed for his isotope separator to sublime the uranium compound was far superior to that provided for the calutrons - a key distinction considering the calutron's sublimation process was one of its key weaknesses.

Calutron efficiency for sublimation ran between 40 and 75 percent. Ardenne's invention was four times more efficient - and has come to be the premiere source world-wide for emitting particle rays, and is known to this day as 'The Ardenne Source.'

One other important distinction separated Ardenne's and Houtermans' work from the other German efforts. The other programs all worked under the direction and as part of the German Army, supplied by and accountable to the military. By contrast, all of Ardenne's facilities - the bomb-proof lab, the million-volt generator, the cyclotron, and the magnetic isotope separators themselves - were provided by, and ongoing funding made available through, the patronage of one man, Reich Minister of Posts and member of the Reich President's Research Council on Nuclear Affairs, Wilhelm Ohnesorge. Like the Manhattan Project scientists, Ardenne and Houtermans worked within the intellectually freer environment of a civilian organization.

Production for the German isotope enrichment projects, once the experimental and design work were completed by Ardenne and the others, appears to have been undertaken by the I.G. Farben company under orders of the Nazi Party. The company was directed to construct at Auschwitz a buna factory,[93] allegedly for making synthetic rubber. Following the war, the Farben board of directors bitterly complained that no buna was ever produced despite the plant being under construction for four-and-a-half

years; the employment of 25,000 workers from the concentration camp, of whom it makes note the workers were especially well-treated and well fed; and the utilization of 12,000 skilled German scientists and technicians from Farben. Farben also invested 900 million Reichsmarks (equal to approximately \$2 billion of today's dollars) in the facility. The plant used more electrical power than the entire city of Berlin yet it never made any buna, the substance it was "intended" to produce.

When these facts were described to an expert on polymer production (buna is a member of the polymer, or synthetic rubber, family), Mr. Ed Landry, [94] Mr. Landry responded directly, "It was not a rubber plant, you can bet your bottom dollar on that." Landry went on to explain that while some types of buna are made by heating, which requires using relatively large amounts of energy, this energy is invariably supplied by burning coal. Coal was plentiful and well-mined in the area and was a key reason for locating the plant at Auschwitz when it was still intended to be a buna facility.[95] The heating-of-buna process, to Landry's knowledge, was never attempted using electricity, nor could he envision why it would have been. Landry totally dismissed the possibility that a buna plant, had it tried an electric option, would ever use more electricity than the entire city of Berlin. And the investment of \$2 billion is, "A hell of a lot of money for a buna plant" even these days, according to Mr. Landry.

The probability of the Farben plant having been completed to make buna appears to be very slim to none. The plant contained all of the characteristics of a uranium enrichment plant, however, which undoubtedly it would never have been identified as, but it would have had an appropriate cover story to camouflage it - such as it supposedly being a buna plant. In fact, buna would have been an excellent cover because of the high level and types of technology involved in both. Indeed, as has been noted previously, General Groves and his intelligence analysts had already identified what he later alleged to be a similar process as a potential enrichment facility.

One last detail of interest regarding this phantom factory: I.G. Farben had close ties with and often financed or otherwise served directly the clandestine purposes of Adolf Hitler - usually working through the Führer's top aid, Martin Bormann, or through Bormann's bureaucracies.

Ardenne's jump on the competition and superior technology, also supported by Martin Bormann through his friend Richard Ohnesorge and his postal ministry, combined with the possibility that the I.G. Farben plant may, indeed, have housed the production versions of Ardenne's uranium enriching magnetic separators or the German ultracentrifuges, likely means that Germany produced enriched uranium earlier, and in greater quantities, than did the United States. This is true especially when considering the possibility that the Nazis, toward the end of the war, may have combined all atomic bomb efforts. They may have multi-staged the partially-enriched product, as the Manhattan Project did, from the isotope sluice and/or the ultracentrifuges, then run the product through the Ardenne electro-magnetic isotope separators at Auschwitz, or vice versa.

And this easily could have been done with a high degree of secrecy, even from other high-level Nazis, given Bormann's close-knit relationships with Ohnesorge; Schmitz, who was the chief of I.G. Farben; Höss, the commandant of Auschwitz; and Heinrich Müller, who, among his many other duties as head of the Gestapo, oversaw the supplying of forced laborers to Auschwitz.[96]

Chapter Four - The Hidden Bomb

"Ardenne worked on some sort of atomic project approved at the highest level, his villa was visited on several occasions by Hitler during the latter's periods of residence in Berlin." [97]

Dr. David Picking from his book *Hitler's Tabletalk*

Ardenne's technology "had clear similarities to the tracks at Oak Ridge"
[98]

David Irving, *The German Atomic Bomb*

On 13 March, 1945, one and a half months before the end of the war, Adolf Hitler addressed the officers and generals of the German 9th Army. The English and Americans were closing in from the west and south; the Wehrmacht was in shreds in front of them and falling back. The Russians were just outside Berlin and closing from the east; in three weeks the German capital would be surrounded. The Luftwaffe was decimated; it could barely get aircraft off the ground. Germany had all but lost. Yet Hitler stood before his soldiers and announced, "we still have things that need to be finished, and when they are finished, they will turn the tide." [99]

Their Führer was intent on buying time until he could thrust his newest, most secret weapon into battle. [100] Scores of later observers and historians would attribute his "miracle weapon" rhetoric to dementia that had set in under the influence of drugs and duress. Or they suggested it was a vain and empty promise meant to buttress German military resolve to buy time while the Führer tried to negotiate with the Allies - or break them up, depending on who one listens to. But Hitler's visionary prediction now appears to have been more than war-wearied wishing or drug-induced hallucinations.

In fact, according to none other than Hitler's top lieutenant, Martin Bormann, in all things the consummate realist, Hitler was neither wishing nor hallucinating. With the end of the war closing in, Bormann had told Gauleiter Hellmuth that a secret weapon soon would be forthcoming even as Germany was being defeated.[101] Party bigwigs were being told by Bormann, and firmly believed, that a most-secret miracle weapon was about to be unleashed,[102] wrote Jochen von Lang. SS General Karl Wolff, who, it will be learned, probably had special knowledge of the secret weapon, revealed in post-war interrogations that he had spoken privately with Hitler about the secret weapon.[103] According to Lang, Bormann focused "all his energy" on making sure the miracle weapon would happen.[104]

Bormann insisted a miracle weapon was coming because, in all likelihood, Bormann had seen it - or at least he had seen its most integral and difficult to obtain component - while touring with Hitler the laboratory where it was created. As was his fashion, Bormann followed Hitler almost everywhere and wrote down on small white cards almost every word that fell from Hitler's lips and nearly all his comings and goings. From these references Dr. Henry Picking wrote his book *Hitler's Tabletalk*. And using those references Picking affirms that Hitler (probably accompanied by Bormann - author's note) made a habit of visiting the private laboratory of nuclear physicist Manfred von Ardenne.

"Ardenne worked on some sort of atomic project approved at the highest level," wrote Picking, "his villa was visited *on several occasions* by Hitler during the latter's periods of residence in Berlin"[105] (emphasis the author's).

Such singular attention by the leader of the Third Reich, whose time was in great demand and who during this period thought and worked only on important issues relating to the war, bespeaks a man fully supporting a program upon whose success he was counting. Hitler by these repeated visits, despite later assertions otherwise, appears to have understood the importance of the von Ardenne nuclear program in the world wide military/political arena. If anything, his visits to the laboratory show Hitler was aware, knowledgeable, involved and supportive of nuclear weapons and that, interpreting the reason for his successive visits, the program must

have been progressing. So if Hitler believed a miracle weapon was forthcoming when he addressed the 9th Army, having been an eye witness to Ardenne's developments, he probably had good reason for that conviction; as did Bormann.

Bormann, in fact, had already focused a considerable amount of energy on making the "miracle weapon" happen.[106] He had actively resisted Armaments Minister Albert Speer's attempts to induct almost 15,000 scientists and technicians into the military - 5,000 of whom had already been inducted were released - so they could continue their research efforts on weapons development. Among them were several atomic scientists saved from conscription into Bormann's own Volkssturm Army. He then issued a decree that protected all scientific personnel from any future combat operations other than as required for defensive operations in the regions of their own homes.

But evidence exists that Martin Bormann had a more direct connection to nuclear development than establishing and enforcing broad policies about scientific personnel and their relationships with the military, and irregular tours through nuclear laboratories. In his book *Inside The Third Reich*, Albert Speer related how Hitler received an update about the development of nuclear weapons from Bormann's old friend Dr. Richard Ohnesorge. Speer gives a brief accounting of Ohnesorge and his chief physicist, the young Manfred von Ardenne.[107] Bormann had worked closely with Dr. Ohnesorge, the mathematician and physicist who was Minister of Posts, on deciphering the intercepted messages between Franklin Roosevelt and Winston Churchill, and had arbitrated a deal between the postal ministry and Hitler on the usage of Hitler's likeness.

Now Ohnesorge was in Hitler's presence again reporting on the nuclear program, an achievement not possible without Bormann's approval at the very least, and most probable only with his wholehearted support.

The possibility seems worth considering that Bormann was not only Ohnesorge's champion and intermediary in Hitler's court, based on their previous success decrypting the Roosevelt-Churchill hotline and the fact that almost nothing was presented to Hitler without having received Bormann's support first, but Bormann appears to have been involved with

nuclear development on a broader level as well. For example, whenever the miracle weapon was mentioned at the end of the war, Bormann's name was always tied to it, as Speer reported in the case of Gauleiter Hellmuth having been told about the weapon by Bormann, and Jochen von Lang documented that "Bormann's commissars" revealed the existence of the weapon.

The miracle weapon program, in its entirety, also follows what had long been the pattern and had all the earmarks of a Bormann intrigue: it was a shadow program composed of people strongly aligned with Bormann, performing tasks outside of the structures one would expect people in those functions to perform.

Speer, without mentioning Bormann by name, even complained about amateurism and "Sunday-supplement" reporting of the program, a complaint he often threw at Bormann, but at few others. The production component of the project, as well, appears to have been assembled and controlled by a web of close Bormann cronies at I.G. Farben, Auschwitz and in the Gestapo and SS. In addition, other powerful leaders, led by Speer, resisted the enterprise but were unable to bring it down, another strong sign Bormann was involved and used his power with Hitler and elsewhere to uphold the effort. Speer usually had his way with the Führer on most subjects; except those that Bormann contested.

Hitler's personal and long-standing interest in the project supports widely documentable evidence that Ardenne, with Ohnesorge's backing, was working with commitment and aggressiveness equal to those who were striving to develop an atomic bomb in America. Additional evidence suggests Ardenne achieved far more success in nuclear energy development than any other German research team - including and far surpassing Dr. Werner Heisenberg and his followers, who in the traditional history are summarily held forth as Germany's nuclear leaders.

At his villa in Berlin Lichterfelde, supported by Ohnesorge's massive funding, Ardenne had built his own first-rate underground laboratory safe from the intermittent bombings delivered by Allied airplanes.[108] Despite efforts during and after the war to minimize Ardenne's achievements, he actually succeeded by mid-war in developing an isotope separation technology that "had clear similarities to the tracks at Oak Ridge,"

according to David Irving, author of *The German Atomic Bomb*.^[109] Irving added that "the Ardenne source," as it came to be known, was, in fact, better than those at Oak Ridge and continued to be the ion plasma source of choice globally for decades after the war.^[110]

What Irving does not say directly is that Ardenne conceived the idea of his magnetic isotope separator in early 1940, at the beginning of the war, not too late in the war to be of service to the German program, as is often inferred in the traditional history. In fact, development of Ardenne's technology occurred at the same time Ernest Lawrence first began toying with the idea of converting his cyclotron into a similar type of device. By then, Ardenne had already drawn up plans for his own isotope separator.^[111] Before the year was out, Ohnesorge had underwritten Ardenne's effort and the equipment for the great laboratory had been purchased.

By mid-1942, at the same time the modification of Lawrence's experimental cyclotron in America ^[112] was completed, Ardenne's isotope separator had been completed as well,^[113] construction having begun in 1941.^[114] In essence, at mid-war Ardenne was neck and neck with America's leading electro-magnetic isotope separation bomb program. For all intents and purposes, so far, he was in a tie in the race for the atomic bomb, something neither Heisenberg nor any of his German cohorts could claim. And a fact never openly admitted by the United States at the time or during the years since.

Lawrence's machine partially enriched a 100-microgram specimen of uranium after a month in operation. No record of the output of Ardenne's machine has been found by this author for comparison, but given the reports of the quality of Ardenne's enriched uranium, he certainly had processed some material. And considering Ardenne's work during the war has been described as "the most far-reaching work on isotope separation,"^[115] based on the success of the Ardenne ion source, Ardenne's isotope separator appears to have been superior to the American calutrons.

The evidence certainly indicates that Manfred von Ardenne succeeded in developing a viable technology for enriching uranium both within the applicable time frame and to a level of quality that cannot be minimized.

And based on that evidence, it seems possible if not probable the German device outperformed its American counterpart.

When calutron technology had been proven in the American uranium enrichment program, it was handed over to the big industrial combines for transitioning into production methods and models; and subsequently uranium enrichment production on an industrial scale was begun. Because such a course of research and development and then production was, and still is, the normal and expected paradigm of technology development; and because the two nation's programs so closely resembled each other in so many other facets; it seems probable the Germans went into development of a production phase of Ardenne's technology at about the same time the United States' program started building commercial calutrons; perhaps without Ohnesorge's and Ardenne's knowledge or complete inclusion. Once the technology had been created, it would not have been necessary for the developers to participate in its adoption to industrial production processes, though it certainly would have been helpful.

There remains the important questions of what happened to Ardenne and his program between mid-1942, when his machine appears to have been completed and was successfully enriching uranium, and the end of the war; and what happened to any enriched uranium that may have been produced at Ardenne's laboratory? At the end of the war, hundreds of tons of German uranium were missing and unaccounted for, possibly because they had been enriched to the 1/140th of the mass that was U235. At that ratio, many kilograms of enriched uranium could still have been produced. Even tiny amounts of enriched uranium were valuable and important. The program had been moving with great momentum.

Although Ardenne's facility was bombed about a year after his machine was completed,[116] given the momentum of Ardenne's work, much progress must have been accomplished by then. Ardenne had repaired the isotope separator quickly after the bombing and there is no reason to believe improvements in the laboratory that could be added to the industrial-level production separators did not continue right up to the end of the war. The questions of whether Ardenne continued to operate and improve his enrichment process, and what happened to any enriched product he created

are unanswered by the traditional history. Critical Mass proposes answers to these mysteries.

Despite his achievements, significant effort has been made to discredit Ardenne's wartime work [117] and, in fact, to hide it whenever possible, including by Ardenne himself. Ardenne, who was essentially self-taught in physics and mathematics but whose zeal for the subject matter and his personal connections allowed him to make great strides with his unconventional projects, was belittled personally and professionally by many of his counterparts for not being a true academic, most especially by Heisenberg and another leading German theoretician Carl-Friedrich von Weizsacker, and because of them, Albert Speer.[118] Ardenne was supposedly, in turn, misled by Heisenberg and Weizsacker into thinking a bomb was not possible for technical reasons, even though Heisenberg, along with Hahn, was one of the theoreticians who had revealed to Ardenne the estimated critical mass of an atom bomb.[119] Despite Heisenberg's later alleged disinformation to Ardenne regarding the technical unfeasibility of a weapon, Ardenne, using Heisenberg's previous argument for a bomb, secured Ohnesorge's funding for his project, who in turn used the argument to gain his audience with Hitler - again, most likely through Bormann.

Ardenne's practical application of physics was not without the direction of a strong theoretical mind that kept him current and gave him guidance in his quest to unleash the atom. He had hired Professor Fritz Houtermans, a fascinating and brilliant Austrian who while still a student in Germany, like Oppenheimer in America, had worked out the thermonuclear theory of solar energy: what fueled the stars - and later hydrogen bombs. In fact it is Houtermans and astronomer Robert Atkinson who, together, are given credit for first deciphering and articulating the thermonuclear theory; so named because of the immense heat inside the stars that is released when hydrogen atoms collide and fuse together to form helium.[120] Thus an atom bomb is the result of energy released by the fission, or splitting of atoms, while a thermonuclear warhead - or hydrogen bomb -- is the result of energy released by the combining, or fusion, of atoms.

Houtermans' genius was not limited to astrophysics. As early as 1932, the same year the nucleus of the atom was discovered and six years before the

atom was first split, Houtermans was the first to recognize and champion the potential for nuclear power from atomic chain reactions.[121] When Houtermans' Austrian compatriot Hitler came to power in Germany, Houtermans immigrated to the Soviet Union. While there he advanced the theory, in 1937,[122] of neutron absorption, which would eventually be used to create plutonium, another first. Before the war had even begun, Houtermans' powerful and imaginative mind in Stalin's hands could have placed the Soviet Union as front-runner among the nations in the race for an atomic bomb, had the Russian leaders paid more attention to the unusual physicist and not committed a serious error instead.

For having thus jumped out of Hitler's frying pan and into Stalin's fire, Houtermans was arrested in one of Stalin's paranoia-driven purges in 1937. Houtermans' wife and children escaped to the United States but Houtermans was imprisoned for two years, constantly at threat of death, and tortured in an effort to gain a confession of having been a saboteur. In one 72-hour session all of his teeth were knocked out. In a following interrogation, Houtermans falsely admitted to having spied for Germany by ascertaining Russian aircraft speeds using a device he had "invented." [123] The torture stopped while his "invention" was reviewed. The contrivance turned out to be wholly invalid on scientific grounds, as Houtermans planned it would, and higher officials correctly deduced his confession had been coerced from him by "unscientific" means, all according to Houtermans' plan.

While Houtermans awaited review of his case in 1939, Hitler negotiated what would be a short-lived peace with Stalin, and Houtermans was turned over to the Gestapo as part of a general prisoner exchange. Heinrich Müller's police force locked him up again for a short time, then freed him on request of Nobel laureate Dr. Max von Laue, with the proviso Houtermans was under Gestapo supervision and the understanding he would not be allowed to work for any state agencies or universities.[124] Soon he was employed in the private laboratory - though funded by the Postal Service, a state agency - of the unorthodox Baron Manfred von Ardenne.

The renowned theoretical and experimental mastery of Houtermans - who despite his proven theoretical leadership was actually degraded as an

experimental physicist - certainly provided significant contributions to the unappreciated but substantial enthusiasm and experimental genius of Ardenne. For example, although Ardenne had been told an estimate of the required critical mass of a uranium bomb would be "only a few kilos"[125] by Heisenberg and Hahn, Houtermans actually performed the exact calculations for critical mass while working for Ardenne in 1941,[126] thus providing a crucial piece of information needed to create an atomic bomb. For comparison, the United States' program did not deduce its final figure for the amount of enriched uranium to be used in the bomb until four years later, in April 1945. Houtermans also had calculated not only the cross sections of a fast, or exploding, chain reaction, but the cost of various isotope separation methods, as well. In addition, while in Ardenne's employ Houtermans performed serious research on development of a nuclear reactor.

Much has been made in previous histories of Houtermans' covert resistance to the Nazis waging war using the fruits of his mind and the infinite powers of the universe it discovered; and undoubtedly much, if not all, of what is reported about his opposition to Hitler is true, for Houtermans appears to have been a man of quality conscience. This fact, and his contributions to a German bomb, as listed above, notwithstanding, history suggests that his main obstruction to the Nazis co-opting his marvelous mind came in the form of steering Ardenne and others away from a bomb and toward the development of nuclear reactors for creating energy for industrial purposes. Besides Houtermans' research into the subject, there is evidence that Ardenne's laboratory was, in fact, actually building a reactor as well as a magnetic isotope separator.[127]

The fact, however, that both Ardenne and Ohnesorge understood and promoted the development of a bomb before Houtermans arrived on the scene and that they continued to pursue one after his employment indicates that Houtermans' politics had little effect upon the purposes of the laboratory or upon its achieving those objectives. In addition, given the Gestapo's close control of Houtermans, it can hardly be expected that he would have effectively tried to thwart Ardenne's, and by extension Ohnesorge's, efforts toward a bomb.

Although all German scientists were watched closely, none had his actions so carefully scrutinized as Fritz Houtermans. In fact, it is entirely possible that Houtermans' working at Ardenne's laboratory was the result of Gestapo Müller having informed his mentor, Bormann, that the eminent physicist was in Gestapo hands following the prisoner exchange with the Soviets. Upon hearing this, Bormann, in an effort to expand his own nuclear program, may have manipulated his bureaucratic strings, steering Houtermans into "his" program run by Ohnesorge and Ardenne, knowing they could use Houtermans' substantial capabilities. Considering the Gestapo's order for Houtermans not to work at any state program, and then Houtermans ultimately working for a state agency, such a course seems likely. For working at Ardenne's facility, which, though private, was funded by a major government branch that performed important war research on the most secret weapon of all, would almost certainly have been considered a breach of the Gestapo directive. Only with the Gestapo's blessing, and, by extension, Bormann's, is it likely Houtermans would have been allowed to work on the Postal Ministry's nuclear bomb project.

The Gestapo's directive to Houtermans may have been a device to keep Houtermans out of the control of Bormann's nuclear bomb development competitors in the military and the universities, as well. Fritz Houtermans had been the "guest" of one too many state police organizations not to know what was expected of him if he wanted to survive. Besides, he was a physicist at heart - to not pursue his work was the same as not breathing.

On the smoky, ash-covered banks of the Vistula River hulked the miserable Polish town of Oswiecim. The cause of its wretchedness surrounded it: To the southwest one kilometer stood a concentration camp established by the occupying Germans who had overrun Poland. To the west two kilometers stood another, much larger camp with an even more nefarious purpose. From its smokestacks the constant snow of human ash settled upon the town. Between the stacks and the town stood the train station through which humans, like ignoble beasts of the field, were trundled to these abject camps. To the east six or seven kilometers was a third camp, reserved for prisoners of conscience who dared defy the Nazi regime, as compared to most of those in the other camps who just happened to be unlucky and were born across the wrong boundary line or of arbitrary parentage. A few

kilometers north of that stood yet another camp, where the "lucky" prisoners were starved more slowly on slightly higher rations while their military masters in the SS sold their 18-hours-a-day labor for a pittance but kept all of the earnings for themselves. The town had even been severed from using its own Polish appellation and was forced to use the Teutonic version of its name: Auschwitz.

To slap wicked insult on cutting injury, 12,000 residents of the town had been thrown out of their homes and German scientists, technicians and factory workers, all employees or contract workers of the world's largest chemical cartel, Hermann Schmitz's I.G. Farben, moved in.[128] From then until the end of the war nothing would be held back in the effort to erect and put into operation what would be one of the most, if not the most, technically advanced processing plants in the world, according to authors Peter Hayes and Richard Sasuly, who wrote *Industry and Ideology* and *I.G. Farben*, respectively.

The site had been carefully selected for its purpose: it was outside of Germany and far from Allied bombing and the watchful eyes of reconnaissance operations; it was next to a major railroad center allowing easy access for moving equipment and materials from around Europe to and from the site; it had a nearly inexhaustible supply of manual labor from the death camps for building the fences, barracks, offices and other non-technical structures required and for operating equipment that might otherwise be deemed too dangerous for individuals whose lives were valued; and it had quick and ready access to vast stores of coal from the Brzeszcze-Jawiszowice coal mine.[129]

The purpose of the plant appears to have been hidden behind an illusory wall carefully crafted to camouflage the truth from the world. So much of what went into building and operating the plant, and the paucity of product reported to have been produced from it -virtually nothing - is not congruent with the history of the company that owned and operated it or its alleged purpose: the making of synthetic gasoline and synthetic rubber, known as buna.

First, and most telling, according to many sources the plant consumed more electricity than the entire city of Berlin.[130] Considering the installation

never made a pound of buna, never even went into production, and is alleged to be the biggest failure in the history of I.G. Farben because of that fact, such electrical consumption is incredible if not entirely unbelievable. That such quantities of power were required to build the facility is highly improbable. Certainly Berlin, the eighth-largest city in the world at the time, constantly bombed by the Allies and continually rebuilt to keep the war machine going, had many construction and reconstruction projects within its boundaries that individually matched or exceeded the electrical demands of Auschwitz's single buna plant, not to mention the total consumption of all Berlin's construction projects combined. Add to these the electrical consumption of the hundreds of thousands of businesses and residences throughout the sizable city and the electrical consumption discrepancy between the city and the buna installation is massive and unexplainable.

Even had the plant been making buna but it was kept secret after the war for some unexplained reason, the electrical consumption would still have been astronomical given the buna manufacturing process, far exceeding any power usage that could have been expected for the facility. The only explanation, had the plant been making buna, that could begin to explain such a high level of electrical consumption, although this even stretches the bounds of plausibility, is that the plant was designed to be totally powered by electricity, including heating the buna directly with electrical power, which would have been extremely inefficient since electricity at Auschwitz was created by burning coal. Normally, the burning of coal heats water to create steam, which would then efficiently be used for the buna heating processes. To burn coal to create steam to create electricity, which was and is the conventional way to create electricity, which would then be used to heat buna, is fundamentally inefficient - and greatly so. There is no conceivable reason to have done such a thing. But by all accounts, the plant never even went into production of buna, so, having reviewed this process to prove the point, there still is no rationale for the enormous electrical consumption on that basis.

Ed Landry, President and General Manager of Keystone Polymers, Inc. of Houston, Texas and an expert on synthetic rubber production, when he was told about the electrical consumption of the buna plant, responded, "that was not a rubber plant - you can bet your bottom dollar on that." Based on

other information provided, as well, Landry believes it is hardly conceivable that the so-called "buna" plant at Auschwitz was primarily designed to make synthetic rubber. When the author contacted another leading expert on buna production, a senior manager with over 25 years of experience in the building and operating of at least three buna plants between the 1960s and the 1990s, this expert supported Mr. Landry's assessment completely. Unfortunately, due to employment requirements, the expert is not allowed to reveal his identity. He furnished considerable details, however, about the construction, costs of construction and development of buna facilities that have been confirmed by the author using current trade journals, and the author has used this information to substantiate his evidence. The information on the development of buna plants is easily available to anybody who cares to pick up almost any journal on synthetic rubber production and review the project construction forums.

Second, the plant had cost over 900 million Reichsmarks, over 250 million [131] 1945 United States dollars based on the initial currency exchange of marks for dollars following the war. The value of the mark, however, had already begun spiraling before the end of the war. Using the conservative \$250 million figure adjusted for inflation to today's dollars, nonetheless, the buna plant would have cost \$2 billion.[132] "That's a hell of a lot of money for a buna plant," asserts Mr.Landry, again questioning the assertion that buna was, in fact, what the facility was built to produce.

The average buna plant that produces 150,000 tons of buna annually costs approximately \$80 million to build - in 1999 dollars. That is \$10.5 million adjusted to 1945 dollars. The expenditure of \$250 million 1945 dollars reported to build the buna plant at Auschwitz is not just twice the amount expected, or even three or four times the sum one would anticipate the plant would have cost, but twenty-five times that of the average buna plant of the day. And today's costs are greatly inflated in comparison with 1945, in order to meet the higher costs of environmental restrictions that doing business on the cusp of the 21st Century entails.

In addition, a plant that produces 150,000 tons of buna per year is producing the same amount of buna that the Auschwitz plant and the two

other existing plants of the time at Schopau and Huens,[133] Germany (each produced 12,000 tons per year) and one additional plant (capacity equal to Auschwitz) that was planned to be built at the same time as the buna plant at Auschwitz, were all intended to produce, combined.[134] That being the case, in essence, the alleged buna plant at Auschwitz would have cost about half as much to build as the 1945 \$10.5 million estimate; in other words, \$5.25 million - about one-fiftieth the cost of the Auschwitz construction. Ultimately, it is hard to conceive of a buna plant producing product that must, of necessity, cost 50 times that of similar product created at other facilities.

Third, the suggestion that I.G. Farben in the four years between the beginning of construction of the plant in early 1941 and the plant's shutdown at the end of 1944, completed only one installation in the buna plant and was still unable to produce buna [135] runs counter to the commission given to Farben regarding the construction of the plant; counter to the priority given by both the Nazis and Farben to the building of the plant; and counter to the history of the company and its experience building buna facilities and its proven capabilities as the largest chemical concern on earth. Considering its great investment,[136] the 25,000 inmates and 12,000 German employees and contractors who worked on the project,[137] and the intense interest and pressure put on the project by Hitler and his SS, it seems doubtful if not inconceivable I.G. Farben would have come up empty on such an important venture. Especially since buna technology had already been developed two decades earlier and buna product was allegedly needed so badly.

I.G. Farben's reputation had been made on technological achievements. The forerunner to the I.G. Farben company was BASF, whose founder, Carl Bosch, had been one half of the two-man team that first developed synthetic nitrates for fertilizers and explosives [138] - called the Haber-Bosch process. The new process, with another Farben-developed technology, the Bergius synthetic oil and rubber process with which buna is made, was the first production-level technology that required extremely high pressures; [139] a challenge Bosch met with great success and for which he was the first engineer to earn a Nobel Prize.

In 1921, BASF's synthetic nitrate plant in Oppau, Germany exploded, killing 600 and wounding 2,000.[140] BASF needed to rebuild the facility fast but required 10,000 skilled workers to do so. The problem was solved by hiring entire companies, paying them so well that they dropped all other business and went to work concentrating only on Oppau's reconstruction and operation. As a result the plant, previously estimated to require a year in reconstruction, was rebuilt and operating within three months; a testament to the acumen and boldness of Carl Krauch, who had been assigned by BASF's Hermann Schmitz, to rebuild Oppau.

Twenty years later, Krauch now wearing the dual hats of chief operations officer of I.G. Farben and plenipotentiary general for special chemical production for the Third Reich,[141] had been assigned, once again by Martin Bormann's old business buddy Hermann Schmitz, to a task that required similar handling, the buna plant at Auschwitz.

"In the new arrangement of priority stages ordered by Field Marshal Keitel, your building project (the buna plant) has first priority," wrote Krauch to Otto Ambros, who headed the day-to-day building of the buna facility.[142] General Keitel, with whom Krauch liaised, was Hitler's chief military advisor, and eventual co-chairman with Martin Bormann on what would come to be known as the highest seat of Nazi power, subservient only to Adolf Hitler himself - The Committee of Three.

Ambros was an interesting choice for the assignment. He was considered the leader in the field of high pressure and synthetic rubber technology and he was the man who oversaw the construction and operation of BASF's first large-scale buna plant at Schopau in 1935.[143] He was also, oddly, Farben's leading expert on poison gas. Ambros dabbled in physics as well, having pioneered theory in magnetic tape technology in 1932; and he studied under Nobel Prize-winning organic biologist Richard Willstaeter. On all fronts, Ambros had special qualities for the special project at Auschwitz.

Given Farben's experience with the Oppau reconstruction and the priority placed by the highest powers in the land - political, commercial and military - on building the buna plant, there appears to be little reason for the installation's construction having taken four years, and yet to not have been

completed at all. The buna process had been invented two decades earlier [144] and was, by now, old hat so to speak; two large production plants were already built and operating successfully. Manpower, both skilled and unskilled, was massively available at Auschwitz. Even though efforts were supposedly being made to update buna technology, there seems to have been little to hinder Farben from repeating Krauch's success at Oppau when constructing the buna plant at Auschwitz.

Given the directive of high priority and the quick results the directive demanded,[145] certainly the buna plant would have come to fruition within four years had buna been the project's true objective. But after four years in construction, at the end of 1944 when it was dismantled and carried away in the face of the approaching Soviet Army, the buna plant at Auschwitz still had not produced a drop of buna.

Certainly there is something wrong with this picture. A compilation of the three central and readily known facts just outlined - electrical consumption, construction costs, and I.G. Farben's previous record - does not easily form a picture that a buna processing plant was the type of project being constructed at Auschwitz. Such a compilation does sketch a picture, however, of another important wartime production process, though secret at the time. The process is uranium enrichment.

First, while buna requires almost no electricity to produce, electro-magnetic isotope separation requires staggering amounts of electricity to power the immense magnets used to separate the ionized uranium particles. As documented, the buna plant at Auschwitz devoured as much electricity as the entire city of Berlin, the eighth-largest city in the world in the 1940s. Few things, even today, consume as much energy as the buna plant did given its small relative size. The fact that I.G. Farben had built an electrical plant next to the buna operation, a very rare occurrence in those days of inexpensive electricity,[146] is stark testimony of the plant's voracious appetite for voltage.

Second, although 25 times the cost of a buna installation, the cost of construction of the Auschwitz plant is strikingly in line with what one would expect to see for an isotope separation plant. For comparison, the United States calutrons program at Oak Ridge spent \$20 million on

research, \$6 million on engineering, \$204 million on construction, and \$10 million on operations, for a total of \$240 million, according to General Groves' own figures.[147] This compares to \$250 million for the "buna" plant at Auschwitz. The harmony of the German and American figures is striking if not compelling.

Third, while Farben had a strong reputation for quick construction of its priority projects, the delays of the "buna" facility and the problems that caused those delays mirrored to a significant degree the chief difficulties experienced at Oak Ridge. The buna plant enjoyed top-priority status over all other projects in the Reich, "even at the expense of other important building projects or plans which are essential to the war economy,"[148] Krauch had declared.

Thus, priority-wise, the "buna" plant held a position roughly equal to that enjoyed by the Manhattan Project in the United States. But even early in the war, before shortages became prevalent, the "buna" plant at Auschwitz suffered continual delays caused by malfunctioning equipment and material shortages.[149] Such setbacks were totally out of character for the technically advanced and highly efficient (even for a German company) I.G. Farben that was supposed to be installing buna technology already well-developed; and that was supposedly being led by managers who were the leading experts in their fields, and, personally, had already successfully overseen similar projects. In addition, due to the vast numbers of people required for the installation, there were difficulties providing housing and transportation as well as the other essentials of daily life, again paralleling similar challenges within the Manhattan Project.[150]

The obvious clues and history of the facility strongly indicate an installation much more like that of isotope separation than buna processing. Add to this the requirement for absolute secrecy about uranium enrichment during wartime and the fact that isotope separation was such a unique and costly process at the time, unlike any other, and it becomes hard to imagine the so-called buna installation being anything but a cover for a uranium enrichment facility.

Other clues, while not conclusive individually, dovetail so alarmingly hand-in-glove with the premise that the buna plant was actually a uranium

enrichment plant as to place a collective exclamation mark after the conclusion. A few examples:

First, despite the reported drastic and ongoing setbacks, the I.G. Farben leaders, Nazi bigwigs and the SS command at Auschwitz appear to not only have worked amicably hand-in-hand throughout to resolve the problems, but they even cordially wine and dine one another throughout the duration of the project, without allowing their supposedly dismal failures to get in the way of their personal relationships.[151] Such relaxed accord could not have been expected within the Nazi regime - nor, indeed, within many other regimes - had the challenge been as high priority, essential and yet as familiar and as easily expected to bring to productivity as the construction of a buna installation. If the challenge, however, was pioneering unknown science with the hope of creating a decisive miracle weapon, certainly an atmosphere of teamwork and esprit d'corp would have prevailed, as was the case within the Manhattan Project, and as seems to have been the case of the leadership at Auschwitz.

Second, I.G. Farben, traditionally known as a chemical concern, on the heels of developing synthetic nitrates shortly after the turn of the century actually had built an explosives empire unequalled in Europe by gaining controlling interests of the other major munitions manufacturers on the continent. Farben then aligned the operations to create Europe's largest broad-based vertical explosives manufacturing empire, causing author Joseph Borkin to write that Farben "had focused a portion of its strategy on the waging of war." [152] Would it not have been the natural next step in that strategy to be the manufacturer of the next generation of weapons - nuclear weapons? And would it not have been the Nazi's most logical next step to ask the leading munitions provider to undertake this endeavor; especially when the relationship was as close as that of I.G. Farben and the Nazi Party?

Once again, the German and American nuclear programs appear to have followed similar paths on this front; chemical companies led the key industrial concerns that produced the American atomic bombs:

DuPont and Tennessee Eastman among the largest. Such institutions were the only organizations that worked with the high-pressure and high

temperature technologies that most closely resembled nuclear technologies. Even combined, however, America's largest four chemical companies did not equal the size, stature, capabilities or expertise of I.G. Farben. And at least one such American company, DuPont, participated only for the sake of patriotism and to ensure the conservation of democracy. The leaders of DuPont not only intentionally precluded nuclear weapons development from its business strategy, but they accepted only one dollar over and above its expenses for the entire wartime project, as a showing of their refusal to profit from war. After the war, DuPont withdrew from nuclear weapons development altogether. Presumably, a company like Farben that had integrated war production into its business plan as a basic tenet of its growth, would be the first to jump on such a potentially profitable market as nuclear weapons.

Third, even the backgrounds of the chief men involved at Farben all appear, to one degree or another, to lend themselves to atomic involvement. Ambros' association and apparent willingness to lead the development of weapons of indiscriminate mass-destruction, as illustrated by his expertise with poisonous gases; combined with his interest and knowledge of theoretical and experimental physics, as shown by his pioneering work with magnetic tape technology; and his ultimate vocation as the chief high-pressure expert and construction project manager at Farben, combine to provide a man singularly prepared to be the chief architect of a uranium enrichment mass-production facility. Martin Bormann's relationship with Schmitz, and through Schmitz, Krauch and Ambros, as well as Bormann's relationship with General Keitel, who has already been connected militarily with the buna plant, and Auschwitz commandant Höss, Reichsführer-SS Heinrich Himmler, and even Himmler's adjutant and liaison with both Hitler and I.G. Farben, SS General Karl Wolff, can all be connected - through Bormann - to the German atomic bomb. Wolff, in fact, had been Himmler's liaison to the buna plant.

Fourth, construction on the plant had started some time in or shortly after February 1941. The time frame is interesting because it was a year after Ohnesorge's first atomic conference with Hitler and about the same time that Ardenne started building his isotope separation machine. German and United States atomic programs often paralleled each other. Both the Oak

Ridge and the Hanford facilities' construction were begun while the technologies for each were still in developmental stages. Perhaps Germany mirrored the United States' policy of starting to build facilities for technologies that were only still on the drawing board, in order to gain an advantage in time. As in America, time constraints were a chief issue, and with the risks of failure being geo-political, economic and military oblivion, it would be expected that the German program, too, had initiated projects before the technology had been proven - on the confidence the cogent piece of the puzzle would be ready when the required time arrived. To fail to initiate concurrent design, engineering and construction would have consumed additional months, or even years, in construction when time was so crucially wanting. Or, more probable, perhaps the installation was originally intended to be a buna facility and its design was modified only after the project was begun.

Speer in his recounting of history, perhaps believing a nuclear program under Bormann never could have succeeded, holds the post-war party line that Germany had not pursued a nuclear initiative with any conviction; a party line readily employed to hide the fact that Germany had, in fact, vigorously pursued an atomic bomb but hid that effort, with help from the Americans, after the war.

Speer castigates Ohnesorge's and Ardenne's efforts and minimizes Hitler's conviction to nuclear weapons and even his ability to comprehend their usefulness. He admits to having been disabused by his own scientific staff by this time of the validity of an atomic bomb within the time-frame of the war, and particularly of the expertise of Ohnesorge, Ardenne and their team. He was also an unsworn enemy of Martin Bormann. He rails on those who supported the Ardenne bomb as "unreliable and incompetent informants (who gave Hitler) a Sunday-supplement account," an accusation he often threw at Bormann in other matters. Speer considered Bormann to be all of the above: unreliable, incompetent and amateurish in his approach to politics, power and leadership.

Speer states, in a bizarre sort of argument, that Hitler resisted development of a bomb out of a moral sense. He then falls back on the work of Dr. Heisenberg as the unquestioned leader in German nuclear physics to

substantiate his position that Germany never gave atomic weapons serious consideration. But in his diatribe Speer totally fails to address the idea that it was common political wisdom by then - even if the potential for a bomb was known only within very high national leadership and scientific circles - that whoever obtained the bomb first would control the world, which was the essence of Adolf Hitler's life, the Nazi cause, and the reason for the war Hitler had begun and continued to execute. Roosevelt, Churchill, Hirohito and Stalin all understood this precept. To think Hitler did not is folly.

Ohnesorge's first great contribution to Hitler's cause was the decryption of the Roosevelt-Churchill hotline, which presumably revealed the American-English nuclear weapons alliance, since the two Allied leaders are almost certain to have discussed it in their hotline conversations.[153] If an enemy achieved nuclear weapons before Germany, Hitler would have lost his life's task by default whether he liked the idea of having or using a bomb or not. His "moral sense" did not stop him from committing a plethora of the most heinous atrocities experienced in this world. The imminence of a nuclear weapon being created by one of his enemies - there was little he could do to stop it - could only be countered by his developing and using one of his own first, and thus winning the war and ruling Europe, and, with the help of the Japanese, possibly the world. Can anyone really believe that the man who introduced to the world Blitzkrieg, terror bombing, Auschwitz and the "scorched earth" policy, so gallantly rejected a nuclear weapon at the cost of his own life's work and his nation's final fulfillment of what he believed to be its supreme purpose, based on moral grounds?

Speer's argument that the Führer was too dull to understand the abstract physics of a nuclear bomb seems most strained, too. Hitler had been capable of understanding and visualizing the benefits of such cutting edge technology as jet propulsion and rocketry, both of which Germany first introduced to the battlefield, not to mention some of the politically ingenious advances he executed in his rise to power and European domination. It sounds a hollow claim that Hitler had not the intellect to "grasp the revolutionary nature of nuclear physics," as Speer suggests.

The time frame of Speer's reference to the Ohnesorge report is mid-1942, the middle of the war. Ohnesorge had first approached the Führer eighteen

months earlier, at the end of 1940, with his nuclear proposal.[154] Hitler is said to have scoffed at the suggestion at that time, and joked that while his other leaders "were worrying about how to win the war, it was his Minister of Posts who had to bring him the solution."[155]

One must ask if following the first meeting and Hitler's reputed rejection, Ohnesorge would have gone forward with nuclear weapons research in the face of Hitler's supposed jeering? Possibly. But if he had, he probably would not have done it openly and with disregard for the Führer's feelings about it. One did not expect to be smiled upon by Hitler if one were openly questioning, by his own actions, the Führer's judgment. So why would Ohnesorge expose himself to Hitler's reproach, as Speer's later account suggests, by giving him an update on the project, especially if it showed the lack of promise Speer insinuates, which would have confirmed Hitler's supposed reservations about nuclear weapons? The fact that Ohnesorge was discussing nuclear arms with the Führer again and Hitler was intermittently visiting Ardenne's laboratory, probably means either Ohnesorge and Ardenne had in fact achieved a significant level of success that validated the program, or Hitler was not actually averse to the program in the first place, as so many interpretations of history, including and often based on Speer's assertions, have tried to make us believe.

Chapter Five - Oak Ridge

"To separate 100 grams (3.5 ounces - author's note)... of U235 per day..., 2,000 4-foot... calutrons could enrich material enough for one bomb core every 300 days." [156]

Richard Rhodes, author

The Making of the Atomic Bomb

The mad scramble that marked the beginning of the Manhattan Project under General Groves' administration must have seemed like a carnival to the outside viewer. The inertia that marked Colonel Marshall's administration was quickly replaced by frenetic activity, but very little of it seemingly tied to a master plan. Much of the Manhattan Project would be operated this way throughout the war. Often parallel programs were being developed and implemented that depended on one another for success, even though none of the interdependent, and very sophisticated, highly technical and extremely demanding, parts had been proven successful before the next component was begun.

The demands of time, from the very beginning, did not allow for this. Huge investments were made, sometimes speciously, of time, money and effort, justified only on a tremulous belief that technologies could and would be created, the need for which had not yet been conceived much less the technologies themselves envisaged. Groves had faith that requisite answers would be found before they were needed, and that all risks were justified by the global imperatives reflected in the war itself, even if it were all lost in the end.

In Germany in April 1942, Baron Manfred von Ardenne already had completed an operational magnetic isotope separator in his laboratory in Berlin Lichterfelde, his associate Fritz Houtermans having correctly

calculated the critical mass of U235 the previous year. Manhattan Project scientists, too, had tried to calculate the critical mass of enriched uranium but came up with a surprising range of values that varied widely. The MAUD Committee, the British group that liaised with the Manhattan Project providing technical support and personnel, calculated the critical mass of U235 to be 25 pounds.

Physicists Frisch and Peierls had at different times predicted the baneful number to be either eight kilograms (17.6 pounds) or five kilograms (11 pounds).[157] Robert Oppenheimer himself, before joining the project, had estimated critical mass at about 100 kilograms (220 pounds). His theoretical group at Berkeley quickly upped that by three times to 300 kilograms (660 pounds).[158] As late as August 1943, when theorists at Los Alamos provided a critical mass estimate of 40 kilograms (88 pounds), the United States' target number for enriched uranium production was still unknown.

And while Ardenne was already proving the effectiveness of his isotope separator, the United States program at the end of April 1942 was still trying to complete development of its calutrons.[159] Despite this and other setbacks, in the United States electro-magnetic separation was unrealistically anticipated to begin enriching uranium by the summer of 1943.[160] Suffering from choking fits and starts, the program would not actually begin any kind of serious production, and even then production would be in such small quantities as to be valuable only for experimentation,[161] until over a full year later, in the summer of 1944. Arthur Compton, in a report he wrote for the Uranium Committee in 1941, had already stated "atomic bombs can hardly be anticipated before 1945." [162] Now it appeared bombs would not be available until November or December of that year, possibly not until 1946.

The challenges and uncertainty being clear, Groves supported other forms of uranium enrichment - as had the Germans - along with electro-magnetic separation, including gaseous diffusion, a method of separating the lighter isotope of uranium from the heavier ones by vaporizing the uranium and forcing its atoms through a series of "filter" barriers. The Lewis Committee, the select scientific/political review board responsible for oversight of

nuclear development at the time, during the winter of 1942 had approved gaseous diffusion as the most likely method to achieve success.[163]

The committee made this prediction despite the fact gaseous diffusion was calculated to require one hundred thousand barriers and the vessels in which to contain them, and several months of processing, to enrich enough uranium for a bomb,[164] and despite the fact that, as of yet, the technology was totally unproved. Groves also had supported an effort initiated at the University of Virginia to study isotope separation by centrifuge.[165]

Outside of the Manhattan Project, the United States Navy was developing a liquid thermal diffusion process for producing enriched uranium to power its warships. Roosevelt had given strict instructions to the Manhattan Project not to co-mingle with the Navy program,[166] the technology of which pumped liquid uranium through concentric tubes of differing temperatures to separate the lighter and heavier isotopes. Liquid diffusion allowed one more avenue of success for making the bomb, and allegedly was eventually utilized despite the President's orders.

In addition to building up these technologies, Groves had to establish a laboratory to study the fundamentals of making and detonating a bomb itself, as well as maintaining a center for studying and implementing the metallurgical processing of uranium that would be required. The atomic bomb development plan - what meaningful plan there was - depended on the programs moving along and, as the laboratories hopefully started providing accurate answers and technologies began yielding usable results, General Groves would then try to cobble together what he could of the disparate successes to produce a viable program from this eclectic assemblage of science.

Realizing it was critical that each step was accomplished at the earliest possible moment, in his very first week Groves signed the approval to purchase 59,000 acres in Tennessee to house uranium enrichment efforts. He also quickly approved a \$100 million expenditure to begin construction of the gaseous diffusion plant - the plant was code named K-25 - before the technology had even been proven.[167] K-25 would eventually consume half a billion dollars [168] of the Manhattan Project's \$2 billion war-time outlay but, despite the traditional history if recently declassified records are

believed, the program would contribute nothing to the atomic bombs dropped on Hiroshima and Nagasaki. Gaseous diffusion did, however, produce enriched uranium for triggering the postwar nuclear generation of weapons - the hydrogen bombs.

K-25 would stand for many years as the world's largest totally enclosed single building, and was twice the size of the calutrons' electro-magnetic isotope separation facility,[169] which became known as Y-12. But Y-12 would be the one and only United States plant through which every gram of American-made bomb-grade enriched uranium is claimed to have been processed.[170] Despite the Lewis Committee's recommendation for gaseous diffusion, the calutrons was still the only technology that had successfully enriched uranium and it remained the method of choice for the Manhattan Project.[171]

The original calculations of calutrons requirements were nearly as dizzying as those for K-25. Experiments indicated that 2000 uranium ionization sources and an equal number of collectors to gather the final enriched product were required to yield 100 grams - only three and one-half ounces - of enriched uranium per day.[172] Such a rate would require 455 days, one and one-quarter years, to produce enough enriched product for the bomb that was eventually dropped (Rhodes calculates 300 days per bomb, based on a smaller bomb estimate than the bomb actually dropped). And the above calculations assumed the calutrons worked reliably. In fact, the calutrons throughout their wartime lives proved to be models of inefficiency and poor operation.

Another humbling fact was that the first production calutrons contained only two,[173] not two thousand, sources and collectors. Ground had been broken 18 February, 1943 for the first "track," as it was called - because its oval shape resembled that of a race track - and it went into operation for the first time 1 August, 1943. But the device ran so poorly due to mechanical and technical shortcomings that it still had not been tested by September. Stone and Webster, the engineering contractor hired to run the operation, finished repairs and final installation in October and "powered up" the machine again in November [174] - to experience a similar failure.

An engineering flaw caused the apparatus to be completely disassembled and shipped back to its manufacturer in Milwaukee to be cleaned and rebuilt. The entire year passed with so little uranium enriched that it could not be counted as production material but only as experimental stock.[175] Also, the enrichment rate was nominal, having raised the level of U235 from .7 percent to 10 percent. True, this was over a 1,000 percent improvement, but bomb-grade enrichment needed to be 80 to 90 percent enrichment.

A 1,000 percent increase to just 10 percent was disheartening. There was still a long way to go. Despite the setbacks, Groves not only approved a second track to be built, with more sources and collectors, but he added plans for a third, with a new wrinkle. The newest track would be used to run already-enriched product, the end result being bomb-grade enrichment resulting from using the "seeded" slightly enriched feedstock. The two different types of track were designated "Alpha" tracks, which were those that consumed raw uranium and produced 10 percent-enriched uranium, and "Beta" tracks, which consumed the 10 percent-enriched uranium and produced bomb-grade uranium. At about the same time, the General decided to reduce the number of planned tracks from 2000 to 500, trusting that technology would become more efficient and bridge the wide chasm between political/military requirements and uranium's realities.[176]

The second Alpha track was in operation by mid-January 1944 [177] and the first, dismantled, Alpha track was returned to Oak Ridge, reinstalled and placed back in operation by March.[178] But problems persisted. To make matters worse, spare parts were non-existent and operators ruefully inexperienced. There was no track record to guide them; no experience base upon which to rely. And the Beta tracks were suffering much the same setbacks as the Alpha tracks.

In the spring of 1944, with only a year left to achieve success, still no enriched uranium had been produced in anything close to production quantities.[179] Still, Groves and his gargantuan, though dubious, enterprise carried on. By the end of June, five Alpha tracks and two Beta tracks were operating, but to very poor performance levels. The ionization sources in the calutrons that converted the uranium feedstocks to a "sublimed" gas in

order to separate the atoms, only vaporized up to 75 percent of the feedstocks. A condition that remained prevalent even to the end of the war, leaving anywhere from 25 to 40 percent of the material with enrichment potential sitting useless in the "feed can" at the beginning of the process. [180] All of this had to be cleaned out, reclaimed chemically, and reprocessed before it could be rerun - to the same result.

In addition, losses of sublimed material accumulated throughout the mechanical system of the calutrons,[181] leaving partially-enriched uranium embedded in equipment surfaces and linings within the device. The enriched material, even in microgram quantities, was so valuable that following each run the tracks were disassembled and thoroughly cleaned using geiger-counters (to locate each small particle), appropriate chemicals and special technologies, in order to reclaim every scintilla of enriched uranium.

Calutrons operators' clothing was specially laundered each day as well, to ensure every microgram that may have been captured in their clothing was recovered. The sum total of all of these efforts, on all of these machines that were operated and supported by literally thousands of people, was still an enriched uranium average daily yield of 11.5 grams per day throughout the month of July [182] - not even half an ounce.

More calutrons were installed to increase production levels. By November, nine Alpha tracks and three Beta tracks - most of them with a full contingent of 96 sources and collectors each - were operating to only slightly better efficiency performance than their predecessors, but the additional machines put production on the rise. Daily output in the first week of November averaged 45 grams (1.6 ounces). In the second week it was 57 grams (2 ounces). The third week production dropped slightly to 50 grams, but in the fourth week of November, production climbed to 81 grams (2.84 ounces) per day.[183] A significant increase but a rate that would still require 620 days, a full one and two-thirds years, to accumulate enough enriched uranium to fuel the bomb that must be used against a belligerent enemy - either Germany or Japan - within eight short months or the United States would forever lose the politico/military nuclear initiative it stood on the cusp of grasping.

Despite the fact that output had not yet reached required levels, the enriched material that had been produced was many times more valuable than any other commodity present on earth at the time - if a price could be set on it at all. The potential this material held to change the world made it, in many ways, valuable beyond the mere computation of cost-to-produce versus volume-of-grams. To protect his enormous investment from what could be an immeasurable loss, Groves prepared a secure location for its storage before transit. Inconspicuous among the indigenous households of east Tennessee, a lone farm house stood at the end of a dusty dirt road. Lumbering farmhands in the peaceful pastures were actually a patrol of security guards. The innocuous silo next to the barn hid a machine-gun nest. The embankment that framed the picturesque homestead harbored a submerged bunker made of reinforced concrete buried under the escarpment's leafy foliage. Inside the invincible bunker a vault stood, surrounded on all sides by yet another cadre of watchful guards.[184] Inside the vault was a few ounces of enriched uranium waiting for the weekly courier to whisk it away to a mountaintop in New Mexico.

Gaseous diffusion at K-25 was just beginning to receive working barriers for filtering the atoms, but only a few at a time.[185] As they arrived, the barriers were installed in the headmost possible stage and tested for integrity, the plan being to allow the first-stage of "converter" vessels to begin the long diffusion process before the numerous ensuing stages had even been completed. In other words, K-25 was making excruciatingly slow headway and had still not produced an atom of enriched uranium.

To crank overall production to a higher level, General Groves either ignored, circumvented or had otherwise persuaded President Roosevelt to belay his presidential order refusing Navy involvement in the atomic bomb project, and Groves adopted the liquid thermal diffusion technology the Navy had been devising as his own. Within K-25, besides the massive gaseous diffusion apparatus, stood a 100-column liquid thermal diffusion pilot plant that Groves had ordered constructed in January 1944 and that had been completed in July of the same year.[186] The plant was soon expanded and began production, according to Groves, at the end of October, and, he claims, it reached peak production in June 1945.[187]

Herbert Childs, author of *An American Genius*, differs from Groves in his account of events, stating that liquid thermal diffusion production output actually began on 1 March, 1945 three months earlier than Grove's assertion. Careful review of charts based on daily Beta calutrons production output, however, shows no hint whatsoever of an increase of production in March or any other time between the beginning of the year and the middle of June. In fact, charted average daily output is so consistent throughout the first six months of the year as to form an almost straight line, with the lone exception being a small dip in production during the third week of January.

This fact not only draws into question Mr. Childs' statement regarding when the thermal diffusion plant began operating, but General Groves' implication, as well, that liquid thermal diffusion continuously rose in productivity until it peaked in June. The record shows a significant upward production curve from mid-November 1944 to the end of the year, corroborating Groves' version of when thermal diffusion production began, but by the beginning of the new year daily production had reached a plateau, consistently producing about 240 grams (8.4 ounces) per day, with no further increase in daily productivity.[188]

Production did take a significant upward turn the fourth week of June 1945, but this advance certainly is related more to other influences than to continuously improving liquid thermal diffusion processes. Groves tries, nonetheless, to account for the significant, immediate, and otherwise anomalous increase of Beta production in mid-June by crediting the increase to the thermal diffusion process. Later, he credited the gaseous diffusion process with the same production expansion,[189] although gaseous diffusion is reported to have first gone into operation less than two months after thermal diffusion did, on 20 January, 1945.[190]

While the process would not have born an immediate impact on output since it is a cumulative process that requires several weeks for end-product to be available, it would have undoubtedly begun producing enriched material long before the six-month time period reflected between the January start-up and the June upward surge.

The Beta output records themselves show that neither gaseous diffusion nor thermal diffusion caused a late-spring dynamic production upturn, as the

traditional history assert. In fact, liquid thermal diffusion was shut down for good just a few weeks after the material for the bomb was accumulated in June,[191] suggesting its ineffectiveness. The mid-June 1945 timing of the increase in enrichment fits perfectly with events of the offloading of the enriched uranium captured from U-234.

With or without the June 1945 spike in enriched uranium output it appeared at the time that the combined isotope separation technologies were going to be successful. Output was finally on track to produce 50 kilograms of enriched uranium by early August - the Manhattan Project's goal for the uranium bomb project.[192] And, even better, the critical mass for U235 finally had been determined to be only 15 kilograms, only one-third the amount of enriched uranium that would be available when it came time to start fabricating bombs. If desired, at the present rate of production, the United States would be able to assemble as many as three uranium bombs in early August. Success appeared to be just around the corner.

Part Two

The Plutonium Bomb

Chapter Six - Timing

"Lt. (JG) H E Morgan, Lt. (JG) F M Abbott, Ens F L Granger with Dr. Schlicke POW in custody leaving Anacostia noon Friday via plane. This party expert in bomb disposal and proximity fuses and being sent to assist in securing certain infra red proximity fuses important BUORD [Navy Bureau of Ordnance - author's note] and in cargo U-234. Fuses when secured to be returned Washington custody above party." [230]

Dispatch from Chief of Naval Operations to Portsmouth Naval Yard, 25 May, 1945

"After Dr. Schlicke completes his lecture he will be available for questions that people ask. But we will kindly ask you not to ask any questions during the lecture and after the lecture Mr. Alvarez will sit at the table and the person who wishes to ask a question is asked to come forward so that we can get in the microphone and keep a record of all the questions and answers." [231]

From the transcript of an introduction to a lecture given by Dr. Heinz Schlicke to the Navy Department.

"Mr. Alvarez" appears to be Dr. Schlicke's handler. Manhattan Project physicist Luis Alvarez was credited with at the last minute solving the plutonium bomb's fuse problems Uranium does not appear to be the only component aboard U-234 capable of being used to make an atomic bomb. There were the steel drums and wooden barrels full of fluids, noted in Chapter One, which Manhattan Project personnel tested, apparently to see if the materials had been, or could be, part of a plutonium breeder reactor. [232] And there were tons of lead, possibly for radiation protection; mercury, possibly for very fast mercury switches; and infra-red proximity fuses. The infra-red fuses were discovered within five days of U-234's landing at Portsmouth, apparently as the result of Dr. Heinz Schlicke's interrogation.

A memorandum written by Jack H. Alberti dated 24 May 1945 [233] stated, "Dr. Schlicke knows about the infra-red proximity fuses which are contained in some of these packages....Dr. Schlicke knows how to handle them and is willing to do so." According to the following transmission, at noon the very next day, Schlicke was placed on an airplane with a three-man escort and flown back to Portsmouth, for the sole purpose of retrieving the proximity fuses.

"Lt. (JG) H E Morgan, Lt. (JG) F M Abbott, Ens F L Granger with Dr. Schlicke POW in custody leaving Anacostia noon Friday via plane. This party expert in bomb disposal and proximity fuses and being sent to assist in securing certain infra-red proximity fuses important BUORD [Navy Bureau of Ordnance - author's note] and in cargo U-234. Fuses when secured to be returned Washington custody above party." [234]

The dossier on the technology portfolio Schlicke took to Japan was extensive. He was either referenced by other prisoners of U-234, listed in documents onboard U-234, or admitted to being knowledgeable in or responsible for: very high technology radar and radio systems,[235] guided missile development, and V2 rockets.[236] While still in Germany, he also had met with a long list of scientists. He noted in his interrogation that the intent of many of these meetings was for him to receive the transfer of their technologies and to later disseminate them in Japan, and to serve as the listed scientists' liaison and advisor with Japan.[237] Among the scientists with whom he had coordinated, which he listed for American interrogators, were Professor Dr. Esau and Professor Gerlach,[238] both of whom, at one time or another, were important members of Germany's atomic research programs.[239] Dr. Esau had served as head of the Kaiser Wilhelm Institute and was a member of the Reich Research Council. Much of the technology accompanying Schlicke to his destination was the product of this group of 54, obviously very high-level, scientists.

That Schlicke was personally and almost immediately flown back to U-234 specifically to retrieve the infrared fuses, from among all the technology for which he was responsible, seems very revealing. It suggests that the infra-red fuses were of immediate interest to the United States, not just as the

booty of war, as were all the other technologies on the boat, but expediting retrieval of the fuses seems to have been driven by a need to have them immediately available for some purpose. That purpose may have been hinted at a short time later. On 19 July 1945, Dr. Schlicke presented a lecture to members of the Navy Department.

A portion of the transcribed introduction of Dr. Schlicke bears an innocuous clue to the possible purpose of the infra-red fuses. "After Dr. Schlicke completes his lecture he will be available for questions that people ask. But we will kindly ask you not to ask any questions during the lecture *and after the lecture* Mr. Alvarez will sit at the table and the person who wishes to ask a question is asked to come forward so that we can get in the microphone and keep a record of all the questions and answers." [240]

The presence of a "Mr. Alvarez" as Dr. Schlicke's apparent host or "handler" may be a singular indicator regarding the importance of the infra-red fuses. The reference to Mr. Alvarez was not the first to be made from among U-234's passengers and crew. Three weeks earlier, General Kessler had written a letter regarding missing personal items in which he identified a "Commander Alvarez" as having seen some of these items. [241] The identification that Alvarez held the rank of commander appears on the face to indicate he was a Navy Officer; no other United States services maintain a rank of Commander except the Coast Guard, which is very unlikely to have been involved with the U-234 intelligence operation.

U-234's skipper, Captain Lieutenant Johann Heinrich Fehler, also identified Alvarez in a letter written decades after the war, but he identified Alvarez as a Lieutenant Commander. [242] The distinction between whether Alvarez was a full Commander or a Lieutenant Commander would be minimal, except that it may be a moot point altogether. Alvarez may not have been a Navy officer at all. In parenthesis in his letter, Fehler, following his identification of Alvarez, noted that Alvarez is "probably not his real name."

Fehler seems to have sensed that there was something disingenuous about Alvarez but assumed that it was his name, not his rank, that was dubious. The name, in fact, may have been a counterfeit. There is no listing of any officer surnamed Alvarez in either the Register of Commissioned and

Warrant Officers of the United States Navy and Marine Corps for either July 1, 1943 or its publication two years later on July 1, 1945. But there is another explanation. The name Alvarez may have been real, but the rank of commander was a fraud, and that was the ill-defined deception Fehler was sensing.

At the time U-234 was escorted into Portsmouth Harbor, the Manhattan Project was near desperation. Because Groves appears to have decided to use some of the already enriched uranium to fuel the plutonium reactors at Hanford, he was short of enriched uranium for the uranium bomb. The Manhattan Project scientists had not figured out a way to efficiently trigger the plutonium bomb. And the mid-August deadline for any kind of bomb was fast approaching.

The plutonium bomb consisted of a hollow sphere of plutonium the size of a small orange. The key requirement to make the bomb explode - besides the creation of the requisite amount of plutonium - was to compress the plutonium sphere so it would reach critical mass. To achieve this compression, 32 redundant detonators - 64 in all - needed to be fired within 1/3,000th of a second, or the bomb would fail.

The challenge was daunting. For a year-and-a-half, the Los Alamos scientists tried to develop a simultaneously firing detonation system. Just a month before U-234 landed, there was "more than a bare possibility that the detonators will be unsatisfactory"[243] wrote Norris Bradbury, who headed the team responsible for triggering the explosion. Indeed, into late June and early July, just two weeks before the first atomic bomb test at Alamogordo, New Mexico, the detonator timing problem was still not resolved.[244]

The experts at Los Alamos had been working on the timing problem since the fall of 1943,[245] but had failed to solve it when, in October 1944, Robert Oppenheimer created a committee to tackle the detonator problem. The first name on the three-man team was Luis Alvarez.[246]

Alvarez had begun his wartime work in the Radiation Lab at MIT, then worked on Ground Controlled Approach Radar, which allowed controllers to "talk down" a pilot whose vision was impaired.[247] He then worked on Phased-array Radar, which allows a radar system to track an object electro-

magnetically rather than steering the system by manual means. After the war, Alvarez went on to win the Nobel Prize for Physics in 1968 for his work on aeronautical navigation systems. And he, with his son Walter and geologist Frank Asaro, were the first to forward the theory that Earth was struck by a meteorite that caused the extinction of the dinosaurs. They based their theory on findings of high levels of iridium in concentrated locations on earth. At first scorned, the theory has become widely accepted.

Luis Alvarez also became one of the great heroes of the atomic bomb story when he solved the plutonium bomb detonator timing problem in the last days before the Trinity Test.[248] In his own account of his work in the Manhattan Project, he wrote simply that he "cleaned up some loose ends in detonator design." [249] The understatement and lack of detail may be telling - especially if it was meant to hide how he "cleaned up" those details.

Of all the Manhattan Project personnel whose name one would expect to see connected to Heinz Schlicke's and U-234's infra-red proximity fuses, if there was a connection, Luiz Alvarez's name would be at the top of that list. The two scientists' backgrounds were strikingly similar; both men were leaders in the field of high frequency light waves. When it came to science, they spoke the same language. If the Manhattan Project wanted somebody to debrief Schlicke or anyone aboard U-234 about atomic bomb development, Alvarez would have been the logical choice. He was one of the very few people who had a broad view and understanding of all the aspects of the program. By late spring 1945, when U-234 arrived on American shores with just two months left until the Trinity Test - the first test of an atomic bomb - the detonator problem was still unsolved and its resolution was now paramount to the success of the entire program.

Alvarez, as the key man assigned to the problem, was in desperate need of a fusing system that could fire multiple detonators simultaneously. Schlicke had fuses that worked on the principles that govern light - presumably they worked at the speed of light. In fact, among the documents Schlicke was accompanying to Japan was a report on "the investigation of the usability of ultraviolet (invisible) light for transmitting messages or commands and particularly for the remote ignition of warhead fuses." [250] The report had

been prepared based on research done from 1939 through 1941 by Hans Klumb and Bernard Koch.

In suggesting that "the ultraviolet method permits the transmission of much more concentrated energy compared with the infra-red method," the inference is made that infrared was also usable for similar purposes, though lower concentrations of energy made it problematic. Ultraviolet light, on the other hand, according to the same report, appears to have presented its own challenges to the task because it had a "stronger absorption rate."

Certainly nothing is proven regarding Schlicke's fuses from this independent report, but the document appears to show that the technology could be used for controlling the type of warhead detonation Luis Alvarez required for the plutonium bomb. The fact that somebody named "Alvarez" was in contact with Schlicke and apparently involved in his and others of U-234's passengers' interrogations, seems to be more than a coincidence.

And the fact that "Commander Alvarez" was not actually perceived by Captain Fehler as being who he claimed to be, provides an interesting, if subjective, observation regarding Commander Alvarez. Fehler mentioned in his letter that Alvarez, who was his interrogating officer, "has always been correct, even when sometimes trying to press some knowledge out of me and to threaten me in a rather primitive way." (sic) The statement that Alvarez was "always being correct, even when threatening in a primitive way" seems on the face of it to be incongruent. But if Alvarez, whoever he was, was not used to interrogating people - as Luis Alvarez surely would not have been - if he was doing his best without the interrogation skills required, would that not qualify as a primitive interrogation, too? Especially if the language in which you were describing the event - English - is your second language, as it was Fehler's?

But what about the identification of Alvarez as a Commander in the Navy? General Leslie Groves, who was in charge of the Manhattan Project, supplied military identities - uniforms, ranks and papers - to scientists Robert Furman and James Nolan, so they could escort the enriched uranium bomb cores to Tinian on board the USS Indianapolis without raising suspicion.[251] Harlow Russ also recounted in his writings how a Major Vanna, an intelligence officer responsible for the technical crew of the

plutonium bomb, always carried with him a cigar box full of rank insignias from every military service. He passed one to each of the team of civilian technicians to wear on their uniform-looking coveralls, so they would not be hindered by military personnel as they concluded their secret project. [252] General Groves, himself, corroborated this story in his book *Now It Can Be Told*, when he recounted how each civilian in the 37-man team of the First Technical Service was required to wear a uniform with a simulated Army rank.[253] That Schlicke was returned to U-234 specifically to pick up the proximity fuses further seems to substantiate that Commander Alvarez, Schlicke's handler, and Luis Alvarez, who solved the plutonium bomb fusing problem, are one and the same.

This suggestion is also strongly supported by two factors. First, according to Harlow Russ, who wrote in his book *Project Alberta* about his work on the team that assembled the plutonium bomb, two significant changes were made to the bomb design at the last minute. One was the development and inclusion in the plutonium bomb of "detonator chimneys"[254] that were developed so late in the process that they were not included in the first four shipments of equipment to Tinian, the Pacific airfield from which the bombs were dropped on Japan. The second design addition was a series of small-diameter stainless steel tubes that "vented" radiation from the plutonium core, according to Russ's explanation, to allow the technicians to monitor activity at the core.[255]

Russ makes a point of stating both additions were new and just in time for the Trinity Test. These modifications suggest that very late before the plutonium bomb's use, passages were being built into the bomb that, presumably, would allow the free flow of radiation, or light waves, throughout the device. Theoretically, with these passages in place, once any one of the 64 detonators was ignited, the system allowed emitted infrared waves to travel at the speed of light through the "detonator chimneys" to the other detonators/fuses and simultaneously ignite all the fuses at the speed of light. As a back-up plan, once any one of the firing detonators compressed the plutonium core at the center enough to achieve even a partial chain reaction, the radiation from that event would be emitted out to the detonators, again at the speed of light, and, again, simultaneously fire all of the detonators.

Obviously, this is speculation based on various, often apparently unrelated evidence. But given the timing of the developments, from Alvarez's arrival on the U-234 scene, to Schlicke's special trip to retrieve the fuses, to Alvarez's solving the timing problem so late in the process, and Russ receiving last-minute design changes apparently initiated to provide paths for the free movement of light waves within the bomb, such a scenario certainly seems viable.

In an effort to substantiate or eliminate this theory, I tried to call Harlow Russ on the telephone at his home in Los Alamos to ask him about the detonator chimneys, venting tubes, and if, in general, there were any significant changes to the actual detonators themselves. Unfortunately my call came too late; I was informed Mr. Russ had died in the few months between when I received from him his book and when I had developed the above scenario.

The second factor suggesting the detonators used to fire the plutonium bomb came from Dr. Schlicke is the striking success of the Trinity Test of the plutonium bomb. Trinity was "successful beyond the most optimistic expectations of anyone," wrote General Groves.[256] "Nearly everyone was surprised,"[257] Robert Serber recorded. In his quintessential tome on the subject, *The Making of the Atomic Bomb*, Richard Rhodes wrote that Trinity was four times its expected yield.[258]

What could have caused such a remarkable miscalculation by the experts? Those who knew the problems the system was experiencing in firing all of the detonators at once by mechanical means, but were unaware that the proximity fuses were being utilized to make detonation occur at the speed of light, certainly would not have expected the profoundly superior results. Thinking the detonation was still limited by hard-cable restrictions and physical switches, and based on tests of these systems, the scientists were expecting a much less dramatic event. Instead, they were surprised by the power and efficiency of the explosion. That so many who knew what the outcome of the detonation should have been were so surprised by how efficient it actually was, tends to indicate that Schlicke's infra-red proximity fuses were used to compress the plutonium core at the speed of light.

Chapter Seven - Hanford

"Irradiated enriched sample intended for you being removed from Clinton (Oak Ridge) pile today..." [259]

Samuel Allison, From a cable to Robert J. Oppenheimer March 17, 1944

(The traditional history asserts plutonium was bred in reactor piles fueled with raw uranium, not enriched uranium - author's note)

Because the long road to a valid uranium enrichment program from the beginning was thought to be a longshot, the discovery of plutonium in December 1940 was a godsend to the bomb makers. More than a year after Glenn T. Seaborg, Joseph W. Kennedy and Arthur C. Wahl confirmed they had re-created an element [260] heavier than uranium that had long ago disappeared from earth, Seaborg and his team, along with Italian physicist Emilio Segre, proved that the new substance would fission. The cleaving of this first man-made element allowed the great American nuclear braintrust a second, more sensible option than trying to pluck a small minority of nearly identical atoms from an otherwise homogenous body of matter, as was the requirement for enriching uranium.

Plutonium was an element unto itself, with characteristics all its own.[261] The difference meant that instead of devising methods to differentiate and take advantage of infinitesimal weight discrepancies between sub-microscopic atomic particles, as was the case with separating uranium isotopes, the plutonium created by bombarding raw uranium with neutrons, which absorbs U238 and thus metamorphs into plutonium, could simply be separated from the uranium by dissolving the mass and rinsing the solution with a chemical found to bind with plutonium but not with uranium. As the "binder" later was separated away, the plutonium would be exposed for the taking. Such an explanation is a vast oversimplification but suitable for a basic understanding.

The process was substantially simpler, nonetheless, than that of enriching uranium. There still existed significant barriers to overcome; like, how could uranium be bombarded with enough neutrons to transmute into plutonium, as would be required to reach production-level outputs? The cyclotron that Seaborg's team used to create plutonium was far too small and neutron-anemic to produce anything but microscopic amounts of plutonium. And once the irradiated, plutonium-carrying slugs of uranium were ready to be dissolved, how could the task be accomplished without radiation poisoning the people assigned the task of working with the highly radioactive material? Plutonium, in theory, was a great solution for a bomb but its practical application would prove to be a prickly challenge in and of itself.

The chemical differences, however, were not the only advantages plutonium held over enriched uranium. With U238 being 139 times more common in natural uranium than U235, and plutonium being a product of neutron bombardment of U238, it was possible to create much more plutonium out of an equal amount of uranium than would ever be possible to separate U235 from the mother substance.[262] And conversely, even while more plutonium fissile material could be made faster and cheaper than enriched uranium, only one-third as much plutonium was needed for a bomb than enriched uranium because plutonium is more radioactive.[263] More nuclear fuel, at higher quality, for less time and money - the advantages were obvious. Despite all of the time and effort and money being poured into uranium enrichment, pursuit of plutonium quickly became the primary objective of the Manhattan Project.

The Manhattan Project's scientific community rallied around the proposal. In fact, Ernest O. Lawrence, the father of the calutrons, plutonium's "competitor," led the charge in favor of plutonium with Oppenheimer's blessing.[264] Arthur Compton, Nobel laureate in physics and one of the original movers and shakers that made the bomb project possible, thought in 1941, before isotope separation had been proven, that the plutonium alternative saved American bomb research altogether.[265] Compton's committee, in fact, recommended the creation of a central lab just to handle the development of a plutonium bomb.[266]

Jewish-German war refugee Hans Bethe, whom one would have thought would jump at the slightest chance of developing a successful bomb to be used against the Nazis, who had driven him from his home, had refused to join an atomic bomb research group. Bethe considered the creation of a bomb impossible; until the plutonium option became available, at which time he jumped into the project with both feet.[267] General Groves, who received his assignment to lead the Manhattan Project in the midst of the plutonium option development, put his best hope in creating a plutonium-fueled bomb [268] and made it the number one priority.

All of this was well and good but plutonium research, though an excellent prospect, was "getting out of the blocks" late. Assessing a plutonium bomb's legitimacy took time. An answer for the weak neutron bombardment problem caused by the cyclotron's limitations was not found until almost the end of 1942. On 2 December of that year, Enrico Fermi's research group successfully sustained the first man-made nuclear chain reaction during their famous experiment in a squash court under the bleachers of the University of Chicago's football stadium. The astounding success meant neutrons could be released in unimaginable numbers, to be absorbed by U238 and thus transmute the uranium into plutonium.

The success of Fermi's plutonium breeding pile resulted in a major change of plans. While the original purchase of the property at Oak Ridge included plans to house plutonium development facilities, General Groves soon realized the risks of building production-size breeder reactors were too great for a highly populated area like Knoxville, which was close to Oak Ridge. A new reservation had to be found, far from a large population center and prying eyes. A site team was dispatched to locate such a location, visiting sites in California, Oregon, Idaho and Washington, and eventually returning to Groves with a recommendation - Hanford, on the barren, eastern plains of the state of Washington.[269] Groves soon flew out to Washington and approved the site. But in February 1943, with barely two and one-half years left to successfully fulfill the future time objective (as yet unknown, since Russia was not showing any signs of declaring war on Japan) the property at Hanford was still in the process of being purchased. [270]

Construction on the site was officially begun March 22, with a multitude of development, construction and research projects running concurrently, not only at Hanford, but at Oak Ridge, Chicago, and elsewhere. By the end of 1943, however, the building of the first reactor pile - so named because a reactor was simply a sophisticated pile of graphite blocks with uranium slugs and control devices inserted in holes drilled through the graphite - had not been begun. Eighteen months to what would be the future objective, and counting, and still no production reactors were under construction.

Which is not to say no work was being accomplished. A small pilot reactor at Oak Ridge had been assembled and was beginning to provide milligram quantities of plutonium for experimentation and metallurgical research. [271] Progress in the chemical process of plutonium separation was being made, with the proposal and eventual validation of bismuth phosphate as a plutonium carrier to separate plutonium from uranium. Innovative methods in miniaturization and robotics, and to some degree television, which would lay the groundwork for the future high-tech industry that would burst forth a quarter-century later, were being developed to perform the dirty, dangerous work of separating plutonium from its mother raw uranium without irradiating the people performing the work.

And at Hanford, although reactor piles had not been started, great strides were already being made toward the construction of the mechanical aspects of the chemical separation facilities.[272] The separation team had devised a semi-automated system where irradiated slugs mechanically were dropped into a huge "trough" that contained the equipment and substances required to run the slugs through the series of steps necessary to dissolve the slugs and then separate the different elements according to requirements. The trough was buried almost completely in the ground and lined with huge cement walls and 20,000 tons of steel plate and cellulose, as well as 7,500,000 square feet of Masonite,[273] all forms of biological shielding to protect operators from the dangers of radioactivity.

At its peak, 42,400 construction workers plied their trades building the Hanford reservation.[274] Even more than in the uranium enrichment program, everything was being thrown into the endeavor to make the plutonium bomb succeed. Still, the chances of producing more than just a

few grams of plutonium in 1943, and not much more in 1944, even under the best of circumstances, was all they could hope for, according to General Groves.[275] Groves did not expect production levels of plutonium until 1945, and there were many doubts about that.

The doubts were well-founded. A year earlier, in the beginning of 1942, Seaborg had written that bombs were planned to be in production around the beginning of 1944.[276] Obviously, that had not occurred. No plutonium was produced in 1943 at all, at Hanford or at the scaled-down experimental pilot reactor at Oak Ridge, which had been built as a working model to develop the Hanford technology. The Oak Ridge plant had been loaded with uranium fuel in early November, however, and went critical soon afterward. As a result, the first day of 1944 saw the inaugural delivery of milligram quantities of plutonium sent to Chicago for experimentation. [277]

The Oak Ridge reactor continued to send experimental amounts of plutonium to the metallurgical laboratory in Chicago and to the nuclear laboratory at Los Alamos. But bomb-production quantities from Hanford would not be produced for almost another full year, beginning on 24 November, 1944 (B reactor, the first to be fueled at Hanford, went critical 26 September, 1944).[278] Only eight months were left on the countdown to August 1945 when the first small quantity of production plutonium was created.

Like the uranium enrichment effort, continual dilemmas and delays had slowed the plutonium program. A most serious problem, realized before production even started, was the low concentration of plutonium the initial pile design would produce.[279] The difficulty, simply put, was that raw uranium contains so few U235 atoms, only one out of every 140 uranium atoms. These U235 atoms fission and release neutrons that in turn either fission more U235 - continuing the chain reaction - or are absorbed into U238 atoms and thus transmute the uranium to plutonium, which is the desired end-product. But even after the maximum amount of fission occurred, after long weeks in the reactor when the U235 was finally spent, much more U238 remained that could have been transmuted to plutonium. Plutonium production, while better than enriched uranium output, was still

woefully lean. Available records of the time appear to indicate the plutonium content of the initial Hanford discharge was so low that the chemical separation process had to be further refined to optimize the product yield to an acceptable level.[280]

As early as 1941, however, Philip Abelson, a physicist for the United States Navy, had realized that using enriched uranium to fuel a reactor would make the reactor rich in free neutrons. The reactor would not only be more powerful, with a greatly reduced size requirement,[281] but, most importantly, the modification would produce significantly more plutonium.

From the beginning and throughout the Manhattan Project, all avenues to improve success were pursued. So it was with efforts to increase plutonium yield. Plutonium was the top priority for a bomb; and with a growing arsenal of newly developed technologies from which to draw, Groves and his advisory board appear to have made a logical and obvious, but very fateful, decision. Unknown to history up to today, they appear to have used the invaluable enriched uranium from Oak Ridge - which was fat in U235 that would provide the neutron flood needed to create significantly more plutonium per production run - to fuel the reactors at Hanford. The decision was not without risk and potential political fallout, however, and so it was vigilantly guarded at the time; and following later dubious developments, it appears to have been carefully buried ever since.

The traditional history simply tells us that the Hanford reactors' design was modified from helium-cooled piles to water-cooled piles. Purportedly this was done to increase the power of the reactors, which would proportionately increase plutonium production - and which would require water's better cooling characteristics - and for ease of design and cost savings in construction.[282] The modification itself, however, almost certainly implies the piles were actually modified to be uranium enriched.

Three keys provide evidence of this fact. First, according to Dr. Bernard Wehring, Director of the J.J. Pickle Research Center for Nuclear Engineering at the University of Texas,[283] and Dr. Delmar Bergen, a retired physicist from the Los Alamos National Laboratories,[284] water-cooling a pile would be used only to cool a uranium-enriched reactor, not one fueled by raw uranium. Both scientists agree that water absorbs

neutrons voraciously and therefore is in competition for neutrons with U235 - which, as mentioned, needs them to maintain the chain reaction - and with U238, which needs to absorb the neutrons to transmute to plutonium. A raw uranium reactor cooled by water would produce even less plutonium than would a helium-cooled pile, not more. The neutron-hungry water in the pile would consume the very neutrons needed to make plutonium.

Fueling the reactor pile with uranium significantly enriched in U235, on the other hand, would increase the neutrons to a level that supports a high rate of fission. At the same time, sufficiently enriched uranium would provide more neutrons for transmuting much greater quantities of U238 to plutonium, all the time feeding the cooling water's hungry appetite for neutrons as well. The water would be required to cool the more powerful enriched reactor, for which helium would be insufficient. The end result, depending on the level of uranium enrichment utilized, would be more plutonium produced at a faster rate. Drs. Wehring and Bergen both admit to not being historians of nuclear physics and that without knowing the full background of the Hanford reactors they could not declare with certainty that the reactors were fueled by enriched uranium. But on theoretical grounds alone, neither of them could conceive of a case in which a raw uranium reactor would be cooled by water.

Second, according to Dr. Wehring, there are only two alternatives for increasing the plutonium-producing capacity of a reactor pile; either add more raw uranium, forcing the pile to be larger, or fuel the pile with a more fissile material - either enriched uranium or plutonium. Since the first Hanford pile, at least, was first fueled by natural uranium and was housed in a facility built for such, there seems to have been limitations on the size of the pile that could have been installed in the building. The author, following extensive research, could find no reference specifically to alteration of the size of the Hanford piles, effectively eliminating the addition of more raw uranium to increase the power of the reactor. No such event having taken place suggests a second proof that the enriched uranium alternative was adopted as the method to increase reactor power and therefore increase plutonium production at Hanford.

A third and compelling proof that the Hanford reactor piles were fueled by enriched uranium lies in the uses of, and changes made to, their forebearer and model, the pilot reactor at Oak Ridge. Communications beginning in March 1944 between Samuel K Allison,[285] who worked at the University of Chicago metallurgy laboratory - called the Met Lab - specifically solving plutonium problems, and Robert J. Oppenheimer clearly show that the Oak Ridge reactor was being used to explore enriched uranium as a reactor fuel. Apparently Phillip Abelson's recommendations three years earlier were being followed.

"Irradiated enriched sample intended for you being removed from Clinton (Oak Ridge) pile today..." [286]

states the first communiqué from Allison to Oppenheimer matter-of-factly. A portion of a letter sent from Allison to Oppy the following day to provide more details said,

I am sending you in a separate package 57 milligrams of enriched T3O8 ("T" stood for "Tube-alloy," the code name for uranium, "O" for oxide; thus the material was enriched uranium oxide - author's note). This is part of the sample which was exposed at X ("X" was the code name for Oak Ridge). You should receive the irradiated material directly from X in the next shipment of product within about a week, and material I am sending you will serve as a control.

Allison's plainly written communications reveal with certainty that experimentation using enriched uranium as a reactor fuel, in at least some of the Oak Ridge pile's fuel, was underway. It is difficult to believe that the plutonium-producing enhancement of using enriched uranium to fuel the reactors, which proved completely successful - virtually all later reactors were fueled by enriched uranium or plutonium - was ignored at such a critical moment in history when its need was so great.

While Allison's references to irradiating enriched uranium in the Oak Ridge pile are the only direct documentation the author has been able to uncover of enriched fuel in reactors during the war, the implication that the change was covered up is seen in how this modification was later recorded for official history. H.D. Smyth, who wrote the first history of the Manhattan

Project, Atomic Energy For Military Purposes,[287] writes that in the spring of 1944, "a change was made in the distribution of uranium" within the reactor. Without mentioning enriched uranium, he goes on to describe how the uranium fuel cells were reconfigured with fewer uranium slugs in the middle so power could be increased without overheating the reactor pile. The result was that reactor performance in June 1944 "considerably exceeded expectations." To produce more plutonium with less uranium would have been impossible - unless the uranium was enriched. And thus, it appears, is purposely hidden the real reason for the increased output - enriched uranium had apparently worked its magic.

The timing of the reconfiguration of the pile in the spring not only coincides with Allison's enriched uranium experiments, but the description coincides with a statement made by Dr. Wehring when such a reconfiguration was described to him. Dr. Wehring theorized that the core realignment would have been required to increase the size and/or number of cooling passages in order to control the additional heat created by the introduction of at least some enriched-uranium cells to the pile. In addition, although Smyth states flatly that the pile was run at higher power levels as a result of the reconfiguration, he never suggests that the pile was expanded in size to achieve that increase. In fact, as noted previously, research shows no increase in the size of the reactor, leaving enrichment the only option.

The apparent cloaking of material information about the use of enriched uranium in the Oak Ridge reactor suggests a similar subterfuge was used when the Hanford reactor designs were described as having been converted from helium-cooled to water-cooled. As has been articulated, water cooling is used to cool enriched uranium reactors and not to cool raw uranium reactors, so, in essence, saying a reactor is water cooled is saying it is enriched uranium fueled - or plutonium-fueled if plutonium was available, which it was not.

All of this information: the knowledge that water-cooling and an increase in power without increasing pile size both denote enriched fueling, and the revelation that Oak Ridge had already performed research on irradiated enriched slugs may suggest that other, more minor, details of the Hanford pile development support the enriched fuel theory as well. For example, the

management of Hanford went to great expense and effort after the redesign of the reactor piles to remove an existing system designed to store the radioactive waste by-products of the pile, and installed in its place a system for extracting uranium from the effluent.[288]

The reason given was to reduce the waste of uranium. But the cost of the modification probably far exceeded the value of the "raw" uranium salvaged - unless the uranium still contained residual amounts enriched in U235. In that case, the inestimable value of the reclaimed uranium would have justified the expense of the reclamation project many times over. A similar reclamation process was already being used in the calutrons for the same reason. And shortly after the war ended, the system was discontinued, suggesting the successful plutonium bomb negated the need for the expense of reclaiming the entrained enriched uranium. Perhaps the reclamation system is yet another evidence the Hanford piles were fueled by enriched uranium.

In April 1944 - again, note the time frame relative to Allison's experiments in March of the same year - a purification system for Hanford's reactors required redesigning when "criticality requirements" were eased.[289] The essence of using enriched uranium instead of raw uranium in the pile was to increase criticality within the slugs to above the marginal level of critical activity provided by raw uranium. Might this modification to the system herald a change in the types of fuel used, also?

And lastly, the chemical laboratory at Los Alamos experienced an unexpected increase in the output of product received from Hanford, straining the department's resources.[290] Estimates of plutonium product coming from Hanford should have been easy to make and reliable not to have drastically increased - unless something drastic had been done to increase plutonium output - something drastic, like fueling the reactors with enriched uranium.

The evidence seems powerful if not incontrovertible that enriched uranium was used to fuel the plutonium breeding reactor piles at Hanford and Oak Ridge. The enriched uranium could have come from no other source than the hard-earned but negligibly growing cache of U235 from Y-12.

Chapter Eight - Simple Math

"By April 1945 Oak Ridge had produced enough U235 to allow a near critical assembly...." [291]

Richard Rhodes, author

The Making of the Atomic Bomb

(Accumulation of enough enriched uranium to achieve critical mass required one year. The uranium bomb prepared for Hiroshima barely three months after the first critical mass was accumulated contained almost three critical masses - author's note)

The determination to use Y-12's hard-won enriched uranium to power the Hanford reactors, like so many other decisions General Groves had to make in order to advance the program, must have been a finely balanced judgment, which is reflected in how he appears to have chosen to execute it. As has been outlined, only two options were scientifically feasible for creating a nuclear weapon before the war ended: a uranium bomb and a plutonium bomb. Technologies to achieve the bombs varied widely in some areas and were interchangeable in others but progress on all fronts was going forward.

Research had shown that probability-wise, economically and technically, plutonium was the better bet - faster, cheaper, easier. But the whole program was still a wager. Nothing was guaranteed. Even considering plutonium's appreciable promise, Groves could not afford to put all his eggs in one basket. To cover all eventualities, the imperative still was to achieve success with each weapon. He simply must be careful allocating resources along the way - ensuring he had enough of the necessary materials to make at least one of each bomb - and then he could weight any surplus resources in favor of the preferred plutonium prospect.

Such an intermingling of resources at this point, however, could prove to be problematic. Enriching uranium came at such a high price in every form of currency, whether it was money, time, or the energy exerted to achieve the endeavor. Consuming the hard-earned enriched uranium in an effort that failed would be anathema to those powerful men who had invested so much into it and were counting so much upon it.

Should the plutonium bomb fall short of success for whatever unknown reason, and the uranium program require more fissile material to produce multiple bombs - which was believed the requirement to achieve victory [292] - both programs may have failed and the ambitions of all involved would be thwarted. For Groves, the risks of taking enriched product originally intended for the uranium bomb and using it in the plutonium weapon must have seemed great, but worth taking. Especially if the intermingling could be camouflaged from the eyes of those who had a vested interest in the success of the overall program. If no one knew that one program had been put at risk for the other, if either program failed it would be considered to have failed on its own deficiencies.

While the brilliant brain trust he had hired was ciphering the universe of factors and exponents, of calculus and algorithms, Groves' decisions, though pressure-packed and frequently daunting, were usually solved using simple math and inspired resourcefulness. For example, each calutron required a given amount of magnetic force, and there was a given number of calutrons at any one time; therefore, a huge amount of silver was required for the electro-magnet windings of the calutrons. Eventually, over 13 tons of silver was required for the calutrons [293] (copper windings were out of the question since hoarding every last bit of copper was essential for fulfilling conventional munitions demands). Groves borrowed 13,540 tons of silver, normally measured in troy ounces - in this case 395 million troy ounces worth over \$300 million - from the United States Treasury.

Or Groves faced the decision of how many Alpha calutrons should be built and how many Beta calutrons? Through the course of time and the accumulation of experience he eventually settled on nine Alpha and three Beta calutrons.[294] And lastly, how should he allocate the enriched uranium between the plutonium bomb option and the uranium bomb

alternative? Probably the simplest, most natural solution was to split the enriched uranium originally dedicated to the uranium bomb, and to use half of the concentrated product in the plutonium reactors while saving half for its original purpose in the uranium bomb.

A second logical option took into account that critical mass for the uranium bomb finally had been calculated at approximately 15 kilograms.[295] He could have gauged the accumulation of enriched uranium so 15 kilograms, expected to be enough for one uranium bomb, would be on hand at a date early enough before the target drop date in August 1945.[296] The bomb's enriched uranium could be reduced to metal, fabricated into its sub-critical slugs, and the bomb assembled in time for use when needed. And, of course, he would still need enough time to transport the weapon to the base of operations, from where it would be flown to its target for its deadly delivery.

Once he had made the calculations of how much enriched uranium per day would be required to accrue 15 kilograms by, say, 1 May, 1945, two months before the drop date objective, any surplus of the precious product could be invested in the favored plutonium-breeding reactors at Hanford. If everything went right, in August Groves could simply add the lone uranium bomb to his reserve of two or three plutonium bombs, which, once the more prolific plutonium started being produced using the enriched uranium, would grow by one bomb every two to three weeks [297] (compared to one uranium bomb every five months [298]). He simply had to choose now to fuel the reactors with the surplus enriched uranium.

Actually, both options merged well together. The rate of enriched uranium production as of the beginning of 1945 was setting a pace to be just at 30 kilograms around the beginning of May - 33 kilograms was actually achieved - according to the Beta Oxide Transfer Report that documented bomb-grade enriched uranium production.[299] If the plutonium bomb was granted half of the enriched uranium produced for the uranium bomb, by early May, 15 kilograms (33 pounds) could still be set aside for the uranium bomb - the amount needed for critical mass. Enough surplus enriched uranium would still be available for the plutonium project to receive 15

kilograms for feeding the Hanford reactors, providing a sizable boost to the more promising effort.

Supporting the suggestion that this path was chosen is a pair of references by author Richard Rhodes in his book *The Making of the Atomic Bomb* that, combined with two contemporaneous documents, reveals how the enriched uranium appears to have been used.

First, based on assumptions recorded by James Bryant Conant at the beginning of 1945, Rhodes calculated that if enrichment output was one kilogram per day, one bomb would be produced every six weeks. (Actually, from the beginning of 1945 through all but the last three weeks of its applicable wartime production, Oak Ridge averaged only one-third kilograms a day). From Conant's information Rhodes calculated that the uranium bomb would eventually need "about 42 kilograms - 92.6 pounds," which he then states was approximately 2.8 critical masses.[300] In other words, taking 42 kilograms and dividing it by the number of critical masses contained therein, 2.8, critical mass can be calculated to be about 15 kilograms.

At that time, nobody knew that three times that amount would actually be required for the uranium bomb, probably due to reduced efficiency due to contamination. Robert Serber, author of the quintessential textbook on Los Alamos, *The Los Alamos Primer*, which was the basis of all Los Alamos' scientists' orientation at the time, writes the amount actually used in the bomb was somewhat higher at approximately 50 kilograms.[301] Serber also validates the 15-kilogram critical mass figure in a footnote.[302] Rhodes stated later in his book that enough material was processed to achieve critical mass in April 1945.[303] One can therefore conclude that critical mass was 15 kilograms (33 pounds), and that the amount for critical mass first became available in mid-April.

But Oak Ridge by this time had enriched roughly 30 kilograms of uranium to bomb quality according to the Beta Oxide Transfer Report - twice the amount Rhodes records was available at the time for the uranium bomb. In other words, half of the enriched material was gone and, outwardly at least, unaccounted for.

The second clue that suggests Groves was dividing the enriched uranium between the uranium bomb and plutonium bomb projects is found in a document written at Los Alamos. Eric Jette, the chief metallurgist at the New Mexico laboratory, wrote in a memo dated 28 December, 1944, that "At the present rate we will have 10 kilos about February 7 and 15 kilos about 1 May." [304] Jette's 15 kilograms estimate by 1 May falls almost perfectly in line with when the uranium bomb program actually achieved that milestone in mid-April.

And the ratio of enriched uranium versus uranium metal to be produced as predicted by Jette, by the same 1 May, 1945 deadline is constant. In other words, all documentation and predictions that the author has found agree on this point: only half of the enriched uranium processed was accounted for and considered in the report that said enough material for critical mass had been produced. A third evidence of enriched uranium shared between weapons programs lies in a memorandum written by J. Robert Oppenheimer to Cyril Smith, Joseph W. Kennedy, Samuel K. Allison and Robert F. Bacher. The document ties these men to enriched uranium usage despite their noted involvement with the plutonium bomb, not the uranium bomb.

The memo, dated 28 July, 1945, four days too late to be discussing product used in the actual bombs dropped on Japan, is nonetheless interesting to this review as much for the four men to whom it is addressed as for the amounts of enriched uranium being shipped. (The quantity of product shipped becomes cogent information at a later point in this narrative.) With the exception of metallurgist Smith, who helped fabricate both the uranium and the plutonium bombs, each man in his own right was a driving force in the field of plutonium bomb development, having little to do with the uranium bomb. Kennedy was a co-discoverer of plutonium and continued, with Emilio Segre, to research the radioactivity of the newfound element.

Allison worked closely with Enrico Fermi on the first chain reacting pile in Chicago that made plutonium production a possibility and continued the bulk of his research in the field of breeder reactors as it related to making a plutonium bomb. And Bacher was dedicated to heading the group that studied the demanding requirements of detonating a plutonium bomb --

which was much more difficult than detonating a uranium bomb -- and was eventually credited with successfully leading the effort to develop the "implosion" method that was used, despite significant obstacles.

In the memorandum, Oppenheimer is reporting to these men the delivery schedule from Oak Ridge of uranium enriched to a level of 86.5 percent - Beta calutrons product.[305] While there may be a remote possibility these men were working together on some aspect of the uranium bomb project, such an instance is highly improbable given the contributions to the plutonium program they are known for, their backgrounds, and certain aspects of the communiqué. There seems to be no reason for Oppenheimer to have reported enriched delivery schedules to these men unless enriched uranium was an important component of the plutonium bomb project. The memo appears to be a very direct validation of production quantities of highly enriched uranium being used in the plutonium bomb project.

Metallurgical fabrication of uranium for both the uranium bomb itself and the uranium fuel slugs for the reactors was performed at Los Alamos. Given Smith's inclusion with the others in the memorandum, for even Smith's involvement was focused more on plutonium development than a uranium bomb [306] it appears the enriched material referred to is for use in the uranium slugs for the Hanford reactors. Reactor fuel is not composed of bomb-grade enriched uranium but normally is enriched to only between two and five percent; and it is unknown to what enrichment the war-time Hanford reactors may have been operated.

Neither the Alpha nor the Beta calutrons were so sophisticated at the time as to be able to control with any certainty their capacity to enrich uranium to a preset level; and considering the circumstances, it would have been risky and inefficient to produce anything but the highest enrichment possible. Instead, the managers of the calutrons must have found it most productive to make the highest-enriched product possible, then calculate the content of enriched versus raw uranium required in the uranium fuel to achieve the desired concentration, and mixed the two uranium stocks to suit. Such a controlled process, presumably, would have produced optimum results for plutonium output.

So in late 1944, General Groves appears to have split the enriched uranium stocks between the weapons programs. Progress appeared to be going well for Brigadier General Leslie R. Groves and the Manhattan Project.

Then the first shoe dropped: As has been noted, sometime during the middle of April - Rhodes places the time between President Roosevelt's death on the twelfth and his funeral on the fifteenth [307] - Otto Frisch reported to Robert Oppenheimer the staggering fact that one critical mass, the amount just becoming available as the bombing target date was fast approaching, would not be enough to fuel a viable uranium weapon. No reason is given for the critical calculation correction but the culprit appears to be contaminants in the enriched material. At its best the uranium was enriched to 90 percent, leaving ten percent either U238 or other, mostly non-fissile, elements, any of which would obstruct the efficiency of the chain reaction. To overpower the neutralizing effects of these contaminants and produce an explosion that justified the expense and reliance that had been placed in its potential, the bomb required significantly more than the 15 kilograms that was the minimum amount of pure U235 initially thought to be required to create an explosion. As has been noted, the quantity ultimately used, according to Robert Serber, and indirectly but roughly supported by Rhodes' own calculations, was 50 kilograms - over three times critical mass.

Rhodes lightly dismisses the shortfall, however, suggesting that it "was now only a matter of time" before the deficit would be overcome. While the statement is obviously true, so it is true that time was a crucial matter - more so than Rhodes seems to have comprehended. Or else the Pulitzer Prize-winning author, despite his laudable achievement assembling the most comprehensive reference work ever compiled about the Manhattan Project, and for which he justly earned the Pulitzer and many other awards, fell short in one small but important measure. While his historical references are extensively documented, footnoted and cross-referenced, he either fails to apply a similar standard for reconciling mathematical anomalies in his book; or he, like many other authors on the subject, chooses not to question unresolved discrepancies.

Possibly he assumes any explanations for disparities are buried beyond the value of their pursuit, and the fact that history suggests they were resolved is explanation enough. Or, also understandably, he may have chosen not to pursue the incongruity as being outside the scope of his already massive work. Whatever the reason, the numbers, as has been demonstrated, do not add up.

Oak Ridge, splitting its enriched uranium allotments between the uranium bomb and the Hanford reactors, had taken almost a year to provide the 15 kilograms available for the uranium bomb by May 1945. In an effort to produce the balance of the 50 kilograms needed, even at its top production capacity in that spring of 1945, the uranium bomb program could only have produced seven or eight kilograms more between 1 May and 24 July. The twenty-fourth of July is the date General Groves, himself, gave as the last delivery date of enriched uranium to Los Alamos,[308] and this is corroborated elsewhere.[309] Seven or eight kilograms added to the 15 kilograms already stockpiled was still far short of the 50 kilograms actually required for the bomb.

Even in a most drastic action, if contributions to the plutonium reactors had been discontinued and all enriched uranium produced had been committed to the uranium bomb effort, a strategy not likely to have been pursued given plutonium's superiority over uranium, especially considering the new tripling of the uranium bomb's material needs, the maximum possible enriched uranium available was just over five kilograms per month. Accumulated over the next three months of May, June and July, the total of another 15 kilograms added to the original 15 kilograms would have made the material available for the bomb 30 kilograms. The 50-kilogram uranium bomb would still have been short its enriched uranium needs by fifty percent. A serious stumbling block had been dropped in the path of the uranium bomb.

The second shoe dropped just a few days later. On 18 April, Norris Bradbury, the man assigned the responsibility of overseeing assembly and final testing of the final plutonium bomb [310] and who went on to become the post-war director of the Los Alamos National Laboratory, reported in a

memo the program was experiencing serious problems with detonators. He then concluded:

- (a) a much smaller number of tests than 300 (the scheduled number) will have been carried out;
- (b) there is more than a bare possibility that the detonators will be unsatisfactory.

Particularly in the latter event it may be necessary to postpone final Raytheon tests until the detonator difficulty is unscrambled.[311]

The detonator problem, the "Raytheon tests" and the timing of the memo itself all are cogent factors in a central premise of this book; that components from captured U-boat U-234 were employed to successfully complete both of the Manhattan Project's atomic bombs. The detonator problem had been a long-standing issue but those in charge thought it would have been overcome long before the spring of 1945. By now the faulty detonators as well as the delay of the Raytheon tests, combined with the shortage of enriched uranium, actually represented less the final shoe falling upon the program than one standing on the throat of the entire Manhattan Project.

Test detonations almost never went right. Getting all 32 firing points to discharge at the same instant using clumsy electro-mechanical circuits of cables, wires and connectors proved to be almost impossible. If the timing was off by a mere fraction of a millisecond at any one of the 32 firing locations, the mass of plutonium at the center would be shot out of the undetonated hole, like a bullet out of a gun. The plutonium core would have been thrust out by the shock wave of all the other detonator explosions that fired on cue.

Poor detonator timing could be caused by small inconsistencies in the quality of the cabling metal or a miscalculation of cable length of just fractions of an inch. According to none other than Luis Alvarez, even "the best detonators then available" were only achieving detonation waves spaced 10 to 20 feet apart, "rather than the required fraction of a millimeter." [312]

The situation, so late in the game, openly was considered a crisis equal to the shortage of enriched uranium for the uranium bomb.[313] System quality was so poor that less than a week before Bradbury wrote his memo, a trial bomb proximity fuse had exploded barely following "bombs away" from the plane.[314] Whether the "proximity fuse" described refers to the same detonators that were causing the problems is unknown, but detonations were not simultaneous at best, and they were unpredictable at worst.

In either case, Oppenheimer, back in October, had aggressively pursued a resolution to the problem and had assigned a three-man committee to "consult on the procurement of detonators to insure that the designs are satisfactory...."[315] The first man listed on the committee was Oppenheimer's old Berkeley buddy, physicist Luis Alvarez, who had transferred to the Manhattan Project from working on the development of radar and other high frequency wave applications. Two other key high-ranking members of the Manhattan Project staff, Kenneth B. Bainbridge and a Lieutenant Colonel Lockridge accompanied Alvarez on the team. Alvarez would later be credited for developing a network of thread-like fuses that, when ignited simultaneously at the 32 detonator points, would instantly and evenly detonate the high explosives, each covering their assigned quadrant of the sphere in near-perfect unison.[316]

But for now, six months had passed since the creation of the detonator team - and only three remained before the Trinity test - and obviously the detonators were still a serious obstacle to success. Alvarez and his team had thus far failed. And this, compared to the "Raytheon" dilemma, appeared to be only a secondary problem, although the two look to have been inseparably interconnected.

According to General Groves, the main delay of the plutonium bomb was "the company manufacturing certain essential parts for a non-atomic assembly in the Fat Man (the code-name for the plutonium bomb) had been unable to meet delivery schedules." [317] Groves continues, explaining that the delayed part hindered testing of the bomb "until a critically late date."

The unidentified component over which he laments was the control unit for discharging the simultaneous firing signal for the detonators, known as "the

X-unit." Raytheon, the unnamed manufacturer mentioned by Groves but referenced by name in Bradbury's memorandum above, was the maker of the X-unit. The device, which cost the equivalent of a Cadillac,[318] was a sophisticated conglomeration of cables, switches, transformers, wires, condensers, capacitors and relays.[319] The complexity of the instrument made it an engineer's nightmare. It appears that X-unit manufacturing was delayed further and made even more complicated because, as the brains of the detonation system, it required that the type of detonators to be used be integrated into the X-unit's design specifications, as seems is suggested in Bradbury's memo.

Surely in as precise a piece of instrumentation as the X-unit, detonator selection must have been an important consideration. But as late as three weeks before the Trinity test, the detonator to be used still had not been selected, and modifications just prior to the Trinity test, as a result, were expected to be made on-site to the hardly-tested X-unit.[320]

Whatever the case, the scientists struggled with the detonator and X-unit problem throughout the fall, winter and spring and still had not resolved it as the fateful summer of 1945 was unrolling. A raft of reports, memoranda and schedules, with addressees including not only Alvarez but those who received the enriched uranium schedule reviewed earlier, Bacher, Allison and Segre, flew from office to office as efforts were made to resolve the detonation problems. The communiqués show that as late as 9 April, 1945, the first in-flight tests for the X-unit were finally scheduled [321] to evaluate X-unit operation on an actual bombing run. The tests proved, however, that the detonators were still unsafe in early May,[322] with only two-and-a-half months left until the Trinity test.

One-and-a-half months later, on 20 June, with less than a month until Trinity and counting down, X-units were finally scheduled to be delivered to Los Alamos for the Trinity test, but even these were not prepared for their final use. Apparently detonators mysteriously had been obtained that could do the job, but for some unexplained reason modifications were still planned for the X-unit, even after delivery.[323] In a memorandum written by George Kistiakowsky dated 6 June, 1945, instructions were given that one X-unit was to be "modified, inspected, and made shippable to Trinity

by 1 July. Two more units for Trinity should be on the Site (sic) by 1 July, and should be modified, and made shippable to Trinity by 7 July."

What was done to acquire the new detonators is unknown, as are the modifications made at the last minute to the X-units. But the timing of these important changes and the activities of Luis Alvarez during this same period may be very telling in regard to how the implosion-timing problem was resolved. Apparently, Luis Alvarez is the same Mr. Alvarez as the false "Commander Alvarez" who received Dr. Heinz Schlicke's proximity fuses from U-234. And it appears that the same enriched uranium so desperately needed to complete the uranium bomb was received from the gold encased stocks of uranium labeled "U235" that Major Vance had taken from U-234. The facts appear to demonstrate that without the bomb materials surrendered with U-234, the United States' atomic bomb effort to win the war by mid-August would have failed. The question is; how did those powerful nuclear components fall into American hands?

Part Three

Martin Bormann

Chapter Nine - Maiden Voyage

"I think it was about 14 April when I gave the captain a signal which read: 'U-234. Only sail on the orders of the highest level. Führer HQ'" [324]

Wolfgang Hirschfeld, Chief Radio Operator of U-234

"I directed the radar beam directly on the attacker. At 3,300 yards the aircraft inexplicably pulled off its headlong course and turned away.... After thirty minutes there was another approach from the west, but...it disengaged at 3,300 yards.... The game went on all night; three times it was repeated" [325]

Wolfgang Hirschfeld, Chief Radio Operator of U-234,

Describing a curious event when U-234 and three other U-boats were located at sea by enemy aircraft but inexplicably were not attacked.

Laden with 240 tons of war materials, including, according to the evidence, enriched uranium and infra-red proximity fuses, U-234 was prepared for her maiden - and what would prove to be her only - mission. She had recently been equipped with a 'snorkel,' Germany's newest submarine device that under normal sailing conditions allowed its user to stealthily sail the Seven Seas without the necessity of ascending for air. The 24 mine-laying tubes on the boat had been remodeled as storage compartments. The outer keel plates had been removed and the keel duct was loaded with a cargo of mercury and optical glass before the plates were re-welded into place. Two hundred forty tons of cargo destined for Japan was estimated by U-234's officers to have been loaded onto the boat; and now it stood at the dock in Kiel waiting to make its desperate dash to safety.

The chief officers of the boat, like the boat itself, appear to have been hand picked for the assignment. Indeed, it is hard to imagine a commanding

officer who would have been a wiser selection for his mission than Captain Lieutenant Johann Heinrich Fehler.

Fehler, like so many U-boat skippers, had begun his career fresh out of naval school on surface ships. He and his eventual first officer, Richard Bulla, brought a breadth of experience to U-234 that had been gained on one of the most famous war vessels - or infamous, depending on one's point of view - in modern times; that of the German raider Atlantis.[326]

In the early days of the war, the Atlantis [327] had roamed the Pacific, Indian and Atlantic Oceans disguised as a ship neutral or friendly to Allied countries. Upon locating and approaching a vessel from one of these countries, Atlantis would unloose its six 150mm camouflaged guns and attack with torpedoes and its two deck attack planes, one of which was piloted by Bulla.[328] The ploy was usually so bold and unexpected that the matter was over in moments and Fehler, who was the munitions officer onboard the ship and who had therefore earned the nickname 'Dynamite,' would then apply charges that would scuttle the captured vessel. By such means Atlantis sunk or captured 22 Allied ships.

Atlantis' modus operandi took daring and cunning, a knowledge of how to execute deception on the open seas, and an understanding of the fine balance between audacity and idiocy that differentiates the successful stratagem that creates a hero from the clumsy ruse, whose outcome is ruin.

The Allies eventually caught on to Atlantis' tactics, however, and, its impact neutralized, the ship was forced to forego its actively belligerent role to be relegated to relieving other front boats with supplies and weapons. Even after Atlantis was converted from rogue warrior to surface supply ship, Fehler quietly carried within him all of those lessons hard-learned in battle, to be used later while commanding U-234.

Atlantis' final foray has become legend. While tied to U-126 in the South Atlantic in a resupply maneuver on 22 November, 1941, HMS Devonshire, a British cruiser, happened upon the boats. Dead still in the open water and intertwined in fuel lines, the two ships' crews suddenly had to race to clear the umbilicals to have a chance at survival. Once free, U-126 dove to safety. With Devonshire bearing down on her, Atlantis was a sitting duck. To avoid

capture of the ship according to standing orders, munitions officer Fehler, as he had done with so many enemy vessels before, scuttled his own ship, adding Atlantis [329] to the list of vessels he had sent to the bottom of the sea.

The 100 crew and officers who went into the life rafts were later found on the open sea by U-216, but there was no room in the U-boat for extra hands. Gross Admiral Karl Dönitz thought so highly of Atlantis and her crew, however, that he ordered two additional U-boats to aid the castaways and bring them home alive.

The rafts were tied to these U-boats and the U-boats, traveling on the surface and moving excruciatingly slowly, sailed for France. The plan, should it be required by enemy attack, was to release the rafts upon approach of a hostile craft and allow them to float away, their occupants to be killed or captured, as the escorting U-boats dove for safety. Fortunately for Fehler and his 99 mates, the plan was never required to be carried out. The three U-boats, the survivors of Atlantis in tow, successfully traversed thousands of miles of open ocean to ultimately reach France. The recovery of the Atlantis survivors now stands in the annals of naval history as one of the greatest maritime rescues of any military service.

Three and a half years after the return of the Atlantis survivors to Germany, at 3 p.m. on the afternoon of 25 March, 1945, fifty-five days before its dubious surrender and entrance into Portsmouth Naval Yard,[330] U-234 with Captain Johann Heinrich Fehler in command, its devastating cargo and many of its passengers sealed away in its bowels, slipped away from its base in Kiel, Germany.[331] Once the tending tugboat had drawn U-234 away from the dock, Captain Fehler took over control of the U-boat and raced "with great speed" down the Kiel Fjord. To reduce the chance of being caught and bombed by enemy anti-submarine aircraft while vulnerable in the narrow, shallow waterway, U-234 sailed surfaced and at near-maximum velocity down the narrow channel. Heading toward the entrance of the harbor, the submarine passed the towns of Laboe and Friedrichsort and then raced out into the open Baltic Sea, where a two-U-boat escort joined it.

In Kiel, the loading of the boat had been completed and her massive hull sealed up for the journey. The crew of 63 [332] (a very large crew for a U-boat - even of this size) was joined by eight passengers, including the two Japanese officers, Genzo Shoji and Hideo Tomonaga, and enigmatic engineer, Dr. Heinz Schlicke. Dr. Schlicke was dressed in a Luftwaffe (German Air Force) colonel's uniform [333] by some accounts. He was identified in other documents, however, both as a navy officer [334] (perhaps "honorary" according to U-234 radio officer Wolfgang Hirschfeld [335]), and as a civilian specialist in high-frequency and radar technology who was being transported to Japan.[336]

Although United States Navy records refer to him unambiguously as a member of the German Navy, with significant references to his involvement there, such references do not preclude the possibility that he actually worked for a different authority. According to U-234 head radioman Wolfgang Hirschfeld, Schlicke was aboard as an advisor/consultant for the U-boat's radar system.[337] Schlicke is documented as having shared his substantial intellectual services with Hirschfeld during the voyage. Despite not knowing exactly who this man was, from all of the evidence available, his services extended far beyond submarine radar technology.

Also on board was Nazi bigwig and Naval Fleet Judge Kay Nieschling, who, even as the Reich was falling down around him, was being sent halfway round the world on the now futile mission of trying spies in the infamous case of the Richard Sorge spy ring.[338] Joining Nieschling, Schlicke and the Japanese duo were four others: Naval Lt. Hillendorn, civilian airplane engineer Bringewald, Naval Captain Falk, and civilian engineer Ruf.

Richard Bulla, Fehler's old mate during their daring Atlantis raids and rescue, already had been removed from the guest list and added to the crew as Fehler's second-in-command. When the originally-assigned first watch officer, Alfred Klingenberg, was caught personally by Fehler in flagrante delicto with another crew member, the Captain removed him from duty and assigned Bulla in his place.[339] Besides reuniting Fehler and Bulla, the assignment had another fortunate outcome: eliminating one person in

the already overcrowded submarine reduced the total number of people aboard U-234.

How Fehler's old Atlantis mate Bulla came to be on the list of high priority passengers destined for Japan can only be speculated upon. Bulla had flown deck planes - short takeoff aircraft - off of Atlantis and had a wealth of experience earned on the raider during daring assaults on enemy targets on the high seas, and therefore was a valued and knowledgeable naval officer and flyer for such operations. U-234 was full of jet aircraft and rockets - and nuclear bomb materials and technical experts of all kinds - destined for Japan.

Japan was trying to find a way to deliver an offensive with teeth in the Pacific that could be successful turning the tide of the war in its favor, but the distances involved in island hopping to attack Allied bases were too great for round trip flights from Japan. And Allied air superiority was keeping Japan's less capable planes from having their way against them. At the same time, Germany was developing plans for its V2 rockets to carry nuclear warheads [340] and to be launched from surface ships. And, according to General Kessler's and Judge Nieschling's later interrogations, Japan was modifying V-1 bombs with kamikaze pilot cockpits built into them,[341] and were quite possibly thinking of doing the same with V-2 rockets.

Germany also had devised another plan for piggy-backing a modified Messerschmidt 262 - the same type of jet that U-234 was transporting to Japan - as a bomber on a long-range Henkel aircraft for long-distance delivery of a bomb.[342] Might Bulla's naval piloting experience be valuable in devising a platform for launching German-made atomic weapons toward Allied bases in the Pacific - part of what might have been a last-ditch, but potentially unstoppable, effort made by the Japanese to win the war?

As U-234 raced out of Kiel Fjord into the Baltic, she turned West into the open bay leading to the mouth of Eckern Fjord.[343] There she waited until dark to begin the first leg of her run for freedom. Shortly after midnight, in the early morning hours of 26 March, U-234 and her two-U-boat escort joined with three smaller Type XXIII U-boats and turned its course toward

Norway. Her orders were to remain in the company of the three smaller boats until they reached the Norwegian coastal town of Kristiansand. The small flotilla traveled East below the island archipelago of Eastern Denmark, then North up the narrow neck of water between Denmark and Sweden. They passed Copenhagen while it was still dark and entered the wider body of water between upper Denmark and Sweden known as The Kattegat. Here the two-U-boat escort broke off and U-234 and her three smaller shadows crept up the Swedish coast, U-234 slowed by the 10 statute-mile-per-hour top speed of the Type XXIIIs.

At 3:00 p.m., chief radioman Hirschfeld requested permission from the bridge to discontinue radar operations momentarily in order to change out a malfunctioning component. The bridge, after reconnoitering the surrounding sea and sky for enemy aircraft or warships, gave the all clear. The radar had been out of service barely 10 minutes when sirens screamed throughout the boat that enemy aircraft were approaching. Aware that the newly installed component had a recommended 15 minute warm-up time, and not knowing whether the aircraft had spotted them yet, Hirschfeld turned to Dr. Schlicke, who had been observing the radioman's maintenance procedure, and asked if it would be permissible to power up the radar system. Schlicke simply nodded.

By the time the system was activated, the aircraft were within 5000 meters, and by the time Hirschfeld sent word to the bridge, they had closed to 3000 meters. Fehler, who had already ordered the anti-aircraft guns manned, now gave the order to fire at will. Nobody responded. In the din of battle preparations they had not been able to hear the Captain's command.

As the air armada flew overhead 2000 meters to starboard, Fehler personally went to take control of the anti-aircraft guns for the return engagement. But the airplanes never came about; presumably, according to Hirschfeld, having never seen U-234 and its triple tail (which is doubtful since the radar of Allied aircraft flying at 10,000 feet could spot a normal sized - much less triple sized - surfaced U-boat as far away as 80 miles [344]). The enemy air patrol may have been on a dedicated mission elsewhere and simply was not interested in the mini-armada. Or the aircraft may have been ordered only to reconnoiter the U-boats, an odd but

plausible possibility given ensuing events. Whatever the case, the U-boats continued their course toward Norway.

Just before midnight of the same day, the U-boat brigade passed behind a southbound convoy of German torpedo boats. Shortly afterward, those on the bridge of U-234 saw the convoy attacked by enemy aircraft and the resulting firefight was apparently quite a spectacle. The screen of U-234's radar glowed with swarming enemy aircraft attacking the small armada of surface ships. Fearful that the planes would turn on them, and unable to dive because of the shallow, thickly mined waters, the crew of U-234 would have liked to race away; but obedience to the order to remain with the smaller, slower U-boats kept her at their sides.

Very soon the airplanes did, indeed, spot the U-boat convoy - again with curious results. Flying very low to avoid radar, but according to Hirschfeld not succeeding, a group of enemy aircraft headed directly for U-234 and her diminutive detail. Hirschfeld recorded the event:

"I directed the radar beam directly on the attacker. At 3,300 yards the aircraft inexplicably pulled off its headlong course and turned away.... After thirty minutes there was another approach from the west, but...it disengaged at 3,300 yards.... The game went on all night; three times it was repeated "[345]

What could have caused the apparently willing and able assault aircraft to approach the small group of vulnerable U-boats but not attack? Under normal circumstances any U-boat, but most particularly a group of U-boats, could expect a full confrontation in such circumstances. In addition, if Allied intelligence knew about the important passengers and cargo on board U-234 - and intercepted radio transmissions suggest they were very aware of U-234 and its passengers and some of its cargo,[346] but not the uranium - no doubt every effort would have been made to sink the boat. When American forces in the Pacific had intercepted a report of a Japanese general traveling by aircraft, a squadron of fighters was sent to find the plane and shoot it down. Certainly if the identity of U-234 was known by those controlling the attacking planes, the same would have been done for U-234, which was carrying a general and several other highranking German

and Japanese officers who were escorting known high technology, war making cargo.

That no effort was made to sink U-234 suggests the U-boat was being monitored and its passage protected, for some unknown reason, at a higher level within Allied command. Obviously, U-234's progress being tracked by the Allies would probably not have been known by the crews of the attacking aircraft. But those who knew the possibilities of U-234's cargo certainly would have kept a close eye on its whereabouts and the conditions under which it was traveling - and had channels to the proper authorities necessary to divert disaster if so desired. Without further information, one can only guess what those conditions were that caused the planes to approach three times and then cancel the golden opportunity to eliminate four enemy vessels at once. Fortunately, further information is available and will be reviewed later within these chapters. At any rate, U-234 was allowed to proceed, and the tiny armada slipped safely into Oslo Fjord just before sunrise of 27 March, and anchored at Horten, Norway.

At Horten, U-234 began trials of its newly installed snorkel device. Two days after arrival, during one of these trials the U-boat was accidentally rammed by another U-boat that was also undergoing trials. Both boats were slightly damaged. A dive tank and a fuel oil tank of U-234 were punctured but the boat was able to continue its testing for four more days, at the end of which Fehler steered his charge to Kristiansand in hopes of making repairs. A problem arose when it was realized that placing the boat in dry-dock while it was full of cargo may stress the hull to the point of further damage. A resourceful solution was found. Since the damage was to the aft of U-234, the forward diving tanks were flooded, forcing the nose of the boat to submerge and the stern to rise out of the water. The innovative idea worked wonderfully and the necessary welding was completed without further problems.

In the meantime, the last of the passengers arrived in Kristiansand,[347] including, according to Hirschfeld, General Kessler and his retinue, Colonel Fritz von Sandrath; Lieutenant Mensel, an airplane torpedo expert; and an engineer Klug. Including the two Japanese officers and other previously boarded guests, U-234 now contained 12 passengers and a crew of 63, a

total of 75 people - almost 50 percent more than the average personnel load of a U-boat.

Chief radio operator Wolfgang Hirschfeld reported that during the repair time in Kristiansand he personally traveled each day to pick up radio messages intended for U-234. He offers no explanation as to why these messages could not be received by U-234 itself, since the radio did not appear to be damaged. During one of these visits he received the following transmission:

*"U-234. Only sail on the orders of the highest level.
Führer HQ." [348]*

What occurred before and after receiving this cryptic correspondence, and what went through Hirschfeld's mind as a result, he doesn't say, but certainly such a communication from the Führer's bunker directly to a specific U-boat is startling.

When Hirschfeld returned to U-234 with the note and handed it to Fehler, the Captain's immediate response, understandably, was to call for Kessler. The General perused the puzzling order and calmly predicted that someone was coming from Berlin.[349] "Probably the Fat One," he lamented, immediately remarking that, if so, he (Kessler) would have to leave the boat. Hirschfeld, whether having heard it from Kessler's lips or otherwise, suggested in his writing that the allusion was probably to Göring, at that time Hitler's heir apparent - though not for long.

Kessler's comment about disembarking U-234 if Göring was going to be along for the ride validates the authenticity of Hirschfeld's account of U-234, since it is a true, if little known, fact that Kessler and Göring disliked one another intensely.[350] To put it bluntly, Göring was 'out for' Kessler and, in fact, had demoted him five years previously from a diplomatic position to commander of an air wing during the attack on Poland. Traveling with Göring would have been a very unsatisfactory condition for the General, indeed, and one can be certain that Kessler did not look forward to a voyage halfway round the world that was bound to take months, stuck in tight submarine quarters with "The Fat One." Still,

Hirschfeld makes the unlikely but accurate statement regarding enmity between Kessler and his superior that validates what he has written.

On that same afternoon, Hirschfeld and Second Watch Officer Karl Pfaff were ordered to appear before the Flotilla Chief. After scavenging a pair of acceptable uniforms to wear before the Flotilla Commander, they made their appearance. The Commander placed a code green - top leadership frequency - transmission on the table before them and asked what the transmission was and how did it get on a high-priority frequency.

The message read: "To head radio chief Hirschfeld on U-234, for your last trip, much luck and healthy return home. Your Bubbi"

"Who is Bubbi?" asked the Flotilla Commander. Hirschfeld told the commander that Bubbi was "the head radio man of 10th Flotilla in Lorient, Bernhard Geissman," apparently a lie intended to protect the identity of Bubbi. For Hirschfeld then explains in his narrative that the U-boat base in Lorient, France had been captured by the Allies by this time, so it would be impossible to verify who had actually sent the transmission and therefore determine who Bubbi was. Such an explanation was strange and unnecessary if Geissman, if there was such a person, truly was Bubbi. That Geissman was Bubbi, therefore, seems as doubtful as Hirschfeld's suggestion that a captured Geissman would have known Hirschfeld was on his last voyage. If Geissman had been captured at Lorient, it also would be a safe bet that the occupying forces were not allowing German radiomen to send and receive unscreened and/or personal messages on high-priority frequencies. Bubbi may indeed have been a friend of Hirschfeld's playing a mischievous joke. But considered in combination with these other facts and the day's previous transmission received, and future radio signals yet to come, it seems more likely the message from Bubbi was some sort of coded communiqué, camouflaged to look innocuous.

What was the origin of the cryptic communiqué? Arrangements may have been made for any high-priority transmissions between U-234 and the Führer bunker prior to the U-boat leaving Kiel to be sent to a communications center at Kristiansand specially equipped to receive such high-level messages. Apparently these transmissions were sent to a specialized communications center the frequencies of which U-234 was

incapable of receiving, or to keep the confidential communiqués from the knowledge of the regular U-boat command. Once the initial contact had been made, per plan, then Hirschfeld could inform the sender in the Führer bunker of U-234's location and provide contact information for keeping in touch. In response, the mysterious messenger in the Führer bunker could then define a plan for further confidential communications on more open channels - using a code name, Bubbi, for identification without revealing the sender's actual identity. The reference to a "healthy return home" may also have been a pre-arranged signal to 'return home' to Germany for some secret purpose, according to a previous directive.

Shortly thereafter, apparently still on the same day, Hirschfeld was called to return to the radio station for yet another message. This one read: "U-234 is to leave under my command only. After you have made your calculations, leave. BdU." BdU was the personal command designation of none other than Grand Admiral Karl Dönitz, commander of the German navy. This transmission is documented not only by Hirschfeld, but in the United States National Archives by OSS records of intercepted German transmissions. [351]

Dönitz's message makes clear that a struggle for control of U-234 was taking place between the supreme U-boat commander and the Führer's top brass. In fact, Hirschfeld identifies this struggle directly, commenting that Dönitz "doesn't let himself be submitted to the top leaders' orders." Apparently, Dönitz by this time had become aware of the plan to use U-234 as an escape vehicle for very high-ranking Party officials at the Führer's headquarters. Possibly the communications center commander had seen through the inconsistencies in Hirschfeld's story about the mysterious 'Bubbi' message and informed Dönitz. Whether Dönitz's determination to keep control of the boat was an effort simply to maintain proper chain of command while still helping to implement the escape plan, or whether his efforts to control the U-boat were to obstruct the plan, is unknown. The latter is doubtful given later history.

Ultimately, history records that Martin Bormann, from the besieged bunker in Berlin, spent considerable attention on negotiations with Dönitz in order to effect his escape from the strangling city. And it records that Grand

Admiral Karl Dönitz, without political experience or, indeed, any political following, eventually, and very unexpectedly, replaced Hermann Göring - whom Bormann had succeeded in bringing down as Hitler's successor - and Dönitz succeeded Hitler as Chancellor of the Third Reich.

Chapter Ten - A Pig Digging For A Potato

"I studied Bormann's technique with Hitler and realized he controlled the Führer!"

Chief of Nazi foreign intelligence Walter Schellenberg

Bormann was "the secret master of a despot."

Hitler courtesan Hans Frank

"Everything had to be done through this sinister guttersnipe (Bormann)."

Hitler's General Chief of Staff Heinz Guderian

"Bormann stayed with Hitler night and day and gradually brought him under his will so that he ruled Hitler's whole existence."

Herman Göring, Hitler's heir-apparent until war's-end

Beneath the city of Berlin, under the Reichstag building, burrowed in a hole like a frightened rabbit seeking desperately to avoid being torn apart by hungry, angry wolves, quivered the once invincible Adolf Hitler. By the last days of April 1945, the Russians had pressed their advance to the outskirts of Berlin, almost completely surrounding it, and, with the winking approval of the Americans and English, had begun pummeling the symbolic center of Nazism under a steady, 24-hour-a-day, barrage of artillery fire. The war-wearied, ghost-faced resident survivors huddled forlorn and resigned in the subway tunnels as the constant thunder of shells rattled whatever structure was left overhead that separated the destitute and despairing from destruction.

The warren-like underground bunker that constituted the Führer Headquarters seemed little more than a living tomb. To make matters worse, in the claustrophobic confines of the caverns Hitler's moods swung desperately between raging paranoid psychopath and drugged derelict. Numb from the imposing reality of abysmal failure, exhausted by unrelenting pressure, partially paralyzed from a minor stroke suffered while in the bunker, though still officially in command, the Führer was far from the commanding figure he once had been. Holed up almost continuously in his private quarters inside the bunker, the inner sanctum of the warren - actually a cell within this self-induced prison - he alternately snarled at and viciously attacked what remained of his loyal commanders and staff, and drifted in and out of exhausted and drug-induced stupors.

The former great ones - ministers, generals and admirals, territorial governors - shuttled in and out, putting on the faces of devout supporters sacrificing their all to sustain their leader. Actually, behind his back they were planning to flee the terminal tomb at the first opportunity and slide silently from the heinous history they had helped write into some foreign backwater where they would be forgotten.

Those who remained were the ill-fated, lower-level staffers who shuffled quietly up and down the dimly lit concrete corridors in support of their beleaguered Führer and a few of his closest high-ranking courtesans. Most of them were there under orders, but they were loyal to the last. The atmosphere, emotionally as well as physically, was hardly breathable. News was never good. In the final stand for Nazism, the old men, young boys and walking wounded who defended the city were experiencing few successes but massive desertions. The city was being given up inch by inch at great cost - half a million people would eventually die in the battle. Reports of Russian atrocities, rape and torture of the captured were legion. The inevitable - the unspeakable - was morosely moving toward these doomed dependents of Hitler and there was little one could do to halt the inescapable. Everyone despaired.

Everyone except Martin Bormann. This Machiavellian minister to the Führer - hardly known outside the close cortège of Hitler's inner circle - with characteristic energy, focus and determination, in contrast to and quite

unconcerned about those around him, was constantly sending and receiving radio transmissions from the bunker communications center. In addition to, or as part of, working out his escape, he is known to have been undermining or negotiating with others of Hitler's henchmen for control of the Reich - apparently confident there would be a Reich to control despite the bleak outlook for Germany.

Most students of these events have considered Bormann's machinations as madness, given the Reich was in its death throws. But upon closer scrutiny of his actions and review of the evidence, it appears Martin Bormann was working a master plan, with Hitler's consent - and within which U-234 played an important part.

Understanding the low-profile Martin Bormann and his unequalled power in Hitler's court is a vital key to understanding Hitler and his power over the masses, not to mention the Nazi Party and the Third Reich. Bormann's post-war activities - for the evidence is very strong that he did survive the war, with American help - and the impact they had on the Nuclear Age must also be considered against the history of his prior behavior, as well, to provide context to our chronicle.

British historian Trevor Roper-Smith calls Martin Bormann, "Hitler's Mephistopheles," his "alter ego," his "evil genius." Bormann was known in Hitler's inner circle as "The Brown Eminence" behind the Führer's throne," [352] (author's note: he is as often called "The Gray Eminence"). The very fact that this one-time farm supervisor should, with Hitler's approval, climb to manage the barbarous Nazis' affairs of state speaks volumes of the exceptional political and financial acumen and skullduggery this sinister Shylock possessed. Hitler eventually came to rely on and appreciate his most trusted lieutenant's talents so much that Bormann - despite almost no military experience - was not only made an honorary major general of the SS but he was awarded SS number 555 - Hitler's own original SS number. [353]

Bormann in return fawned on his Führer embarrassingly yet unapologetically; writing Hitler's nearly every word on small white cards he carried at all times. He seldom took vacations or trips of any kind that would separate him from the Führer for more than just a few days, for fear

of losing court status. "Bormann stayed with Hitler night and day," Herman Göring later recounted,[354] "and gradually brought him under his will so that he ruled Hitler's whole existence."

Even though serving as his master's slavish lap dog - in fact, because of it - Bormann came to wield complete authority over the Reich. He accomplished this accumulation of power in a variety of ways, virtually all of them stemming from his position with Hitler. He had access to and kept copious files of evidence and materials aimed at exposing for some misdeed or another, if needed, almost every person of authority in the government, military or the party - including Hitler himself. He also discreetly distributed low-interest or no-interest loans from party coffers,[355] some that did not require repayment, to those whom he felt it would be advantageous to have indebted to him, such as SS leader Heinrich Himmler, who accepted from Bormann millions of Reichsmarks per year.[356]

The powerful group of 41 Gauleiters, the 'governors' - actually virtual dictators - of the Reich's various 'states' or 'provinces,' reported directly to Bormann as head of the Nazi Party. He cultivated and maintained a strong relationship with this group collectively and many of its most powerful members individually, throughout his tenure until the end of the war.

Bormann's position as Reichsleiter of the Nazi Party also made him, in theory at least, the second most powerful man in the Reich. At party rallies as early as 1934, Hitler had declared that the party gave orders to the government, not the other way round.[357] Later interrogations that were part of the Nuremberg Trials verified this relationship.[358] The party, therefore, controlled the government, and Bormann controlled the party.

The Reichsleiter underpinned his power-base by duplicating within the party almost every function required and operated by the viable government. In essence, Bormann created and held the strings to a very powerful "shadow bureaucracy,"[359] complete with its own police force - the Gestapo - and its own armies - the Wehrmacht SS - both under the direction of one of Bormann's chief accomplices, Heinrich Himmler - and the 1 million-man-strong Volkssturm.[360] Bormann was ruthless in his quest for power, to the point that his one-time boss, Nazi Party Treasurer Schwartz, compared him to Joseph Stalin lurking behind Lenin, saying,

"Bormann was the most pernicious egotist around.... He would kill, like Stalin."[361]

Author William Stevenson echoed that sentiment in his book, *The Bormann Brotherhood*, also comparing Bormann to Stalin,[362] as have many authors and historians since.[363]

In truth, Hitler and Bormann were complementary pieces to the same perverted puzzle. Their personalities and psyches fully understood and intermeshed with one another across the complete spectrum of power-over-the-masses leadership they practiced - and recognized in each other the exceptional counterbalances of their strengths and weaknesses. Where Hitler's political acumen and charisma failed, Bormann would use his web of intrigue and bureaucratic power to achieve the desired end, explains Bormann biographer Joachen von Lang.[364] Whether Bormann on his climb to the top astutely identified Hitler's deficiencies and determined consciously to fill them himself, or whether the marriage was simply a fortuitous match of fate personality-wise, will probably never be known.

Eventually this symbiotic compact - whether spoken or unspoken nobody knows, either - gave Bormann the confidence he needed to take the bold step of cordoning off the Führer from all others, to be accessed only through him who would become "the dictator of the ante-room"[365] - Bormann himself. In 1943, Bormann successfully convinced Hitler - based on their co-dependent relationship and the fact that Hitler, who had appointed himself Supreme Commander of the Army and was spending all of his time and energy personally running the German war effort - to sign a decree appointing a Committee of Three,[366] composed of Bormann and two others, to oversee the everyday operations of the Reich and to screen the Führer from unwanted distractions. All communications, reports and requests intended for Hitler had to pass through the Committee of Three first. In typical Bormann fashion, he then subjugated the other two committee members and controlled all information coming to and going from the Führer.[367]

Combined with his position as head of the Nazi Party, which was already operating in proxy for the federal government, which in turn was now

nothing more than a shell, Martin Bormann had solidified his hold as the second most - some said the most - powerful man in Germany.

"I studied Bormann's technique with Hitler and realized he controlled the Führer!" recorded the chief of the Nazi foreign intelligence service Walter Schellenberg.[368] Bormann was "the secret master of a despot," according to Hitler courtesan Hans Frank.[369] "Everything had to be done through this sinister guttersnipe (Bormann)," complained Hitler's own General Chief of Staff Heinz Guderian.[370]

Following years of careful conniving and sinister strategies, Bormann had realized his dream - he was, many who were there at the time and some later historians agree, in substance if not in title, the leader of the Third Reich.[371]

While Martin Bormann's name, position and the profound power he wielded in Nazi Germany are almost unknown to the average person - and such was the case even when Bormann was enjoying unequaled fraternity with Hitler as his Nazi Party chief, administrative right-hand man and personal paladin - those close to the Führer at the time, to a man, understood that the key to Hitler during the mid- to late-war years, and possibly earlier, was clenched firmly in Bormann's fist.

To understand how Martin Bormann possessed the power at the end of the war to negotiate away Nazi Germany's developing nuclear arsenal in order to sustain himself and the Nazi cause after the war, one must understand the symbiotic relationship between him and Hitler. The defining elements of their lives, sometimes detailed in mirror-like reflections and then sometimes balanced by what seem like polar opposites, while at other times punctuated with bizarre and unequaled uniqueness, are as striking as the surprisingly complementary nature of their beings. That two men could be so well fitted for forwarding the rare ambitions of one another hardly seems probable. Yet the peculiarities they shared and the differences that filled the holes where each was lacking resulted in two remarkably compatible counterparts - although not psychologically healthy ones.

Adolf Hitler was born the son of a low-ranking Austrian bureaucrat, a customs official who was a drunken sadist, already 52 years old when Adolf

was born, and who beat his son and wife, squandered the family money on alcohol, and taught through his actions that "right" is always in the hands of the most powerful. Adolf Hitler learned this lesson - and how to hate - from his father, for whom he grew great loathing and animosity.

Martin Bormann was the son of a civil servant, too, a German postal worker.[372] But while Hitler hated his father and had only one sister, younger than he, Bormann adored his father and paid homage to him, often to the point of heaping upon his memory blatant and unearned exaggeration of his achievements. Holding his father in such reverence was undoubtedly the result of Martin not really having known his father, who died when Martin was less than three years old.[373] The elder Bormann had actually lived a simple, ordinary life, had been married once previous to his marriage to Martin's mother and had sired three children (one died in infancy) from that early union. Upon his death his widow, to support her two natural children and the two step-children she had inherited from her husband's previous marriage, quickly remarried her own dead sister's widowed husband.

Bormann's new step-father brought five children of his own, Martin's cousins, into the now hodgepodge family. Martin immediately disliked this intruder, and his gaggle, whom he considered was trying to take his father's place. The feeling was later exacerbated when, during the hardships caused to all Germans during World War One, rather than serving in the armed forces, his stepfather the town banker gloated over the money he was making from war lending. Martin's enmity for the man and his unseemly behavior, however, did not keep Bormann during the next world war from indiscriminately emulating similar war profiteering conduct, but on a much grander scale. The two men remained distant throughout their lives.

The lack of a respected father figure, the eclectic and tangled family tree and the distorted relationships these conditions fostered must have been the source of much unusual and perverse psychological programming for the young Martin Bormann. Thus in the petrie dish of dysfunctional families and flawed fatherhood were the psychotic psyches of Adolf Hitler and Martin Bormann born.

Both Hitler and Bormann, in a society that valued highly the Germanic ideals of education and intellectual achievement, dropped out of high school, neither one achieving consistently good performances in their matriculations but both showing flashes of real genius in the disciplines they personally enjoyed. Hitler, molded by the heavy hand of his abusive father, extended the unmitigated malice resulting from this excessive behavior to all authority figures he faced, which caused him trouble in the classroom. He was ejected from a catholic school for defying a no-smoking rule, overbearingly insisted on being the leader among his classmates despite any hint of trying to earn such a position or the respect that goes with it, and openly "sabotaged completely," in his own words, any school endeavor not to his liking.[374] He later vilified or otherwise repudiated as stupid or crazy educators in general, making exception only for Dr. Leopold Poetsch, a fervent German nationalist, among all the teachers of his childhood.

German pre-World War One schools, most particularly in the Weimar region where Bormann grew up, were teaching a searing brand of nationalism, pan-Germanism and German cultural superiority, too.[375] Like every other youngster in Germany at the time, Martin Bormann was seeped in this doctrine whose spirit swept the German nation right up and into the first world wide conflict. Bormann absorbed the nationalistic fervor and carried it within him throughout his life, though in his case, as in Hitler's, it would grow in a monstrous, mutated form.

A patriotic appreciation, in whatever form and however important to his later life, was one of the few benefits Bormann would receive from his schooling. While later events proved he was anything but stupid, in the classroom, for whatever reason, he appears to have struggled. Using dates he later provided in government documents and applications, it appears Martin Bormann took eight years to complete seven grades, apparently also sabotaging his own education; and he exited high school ungraduated, as had Hitler before him, after the eleventh grade.[376]

Driven by visions of grandeur and a staunch belief in his own genius, at the age of 18 years Hitler left his widowed, incurably ill mother in the town of his childhood and moved to Vienna to become an artist. He wandered the

streets of the metropolitan city, painted, dreamed and starved. He was rejected for acceptance at the Vienna Academy of Fine Arts when he failed the entrance examination, a rejection he never forgave, and for the next half-decade he wandered the streets, took small jobs, painted and sold his artwork in the streets when he could, and panhandled for food and shelter when he could not.

His "genius" unrecognized and expectations of riding his talent to easy wealth and fame thus unfulfilled, Hitler looked outside himself for the reasons for his failure. The blame, he decided, lay in a weak government, in this case a parliamentary democracy, that allowed Jews to control and therefore own its economy and thus disenfranchise the rightful heirs of the fruits of that government, those of Germanic blood. Because so many Jews at the time supported Marxist ideals, he deduced that the two parties were colluding on a grand scale to control the world. Communism joined Jewry and democracy as a cause for his failings and, in his mind, the failings of the Germanic race. Where his father taught him to hate, and disemboweled dreams magnified this malevolence, Hitler now had a focus upon which to aim his virulence.

Wallowing in his misery, penniless, often homeless and usually sick, his life was in an unpromising, spiraling descent when "The War To End All Wars," World War One, erupted to send much of the civilized world into the depths of hell - and to save Adolf Hitler.

On the crucible of the battlefield he found the vehicle to vent his rage - war. Serving in no less than 47 battles in a four-year span, Hitler was wounded twice, for which he spent several months in recuperation and earned the Iron Cross, both First and Second Classes.[377] Although never rising above the rank of corporal during the four war years in which he served, he showed an inkling of the boldness for which he would later become known when he captured an enemy officer and 15 of his men.

During the war, a new vision began to form in Hitler's fevered head. The images that once he placed on canvas were now being replaced with a skewed vision of how the world should be ordered. Soon his brushes, pencils and painter's palette would be replaced by a more formidable media - death and destruction: grenades and guns and tanks, with which he would

paint a new and very real picture of what he thought the world should be.
"Might is right!"

If there is an opposite of living the daring, Bohemian, but inspired existence of the artist, as had Adolf Hitler, it is living the structured, precise, but ample life of a bureaucrat. So it was with Martin Bormann. Leaving school during the closing months of the war, Bormann joined the army and spent what few months remained of the already-lost conflict avoiding a useless death from bullet or grenade by serving as an officer's orderly. Here he learned not only how to evade placing himself in harm's way but, enamored with his proximity to important people - in fact, tutored by them - he began his lifelong avocation, which migrated into a vocation, of licking the boots of those higher than he in order to get ahead. The instinct was one that Hitler, who as a school boy had insisted all others follow him in the game of Follow the Leader, would later enthusiastically acknowledge was the most essential characteristic of his most valued and trusted lieutenant, Martin Bormann.

One should not consider Bormann's position that of weakness. The power that flowed through him from his master and protected him by virtue of his slavish alignment with his master's wishes was unequivocal and untouchable by all others save the source of that power. As long as Bormann remained unquestionably attentive, the powerful host would continue to feed the parasite. And the parasite would continue to feed on the throng that was drawn to his master while at the same time forcing that throng to do their master's bidding. Bormann's parasitic behavior was toward the throng, not his master; the relationship with the master was symbiotic, each benefiting from the behavior of the other.

Bormann's innate and infallible instincts for survival served him well after World War One. With the country in ruins, the economy in chaos and the populace impoverished and starving, Martin Bormann, revealing a latent predilection for always incisively cutting to the kernel of an issue, quickly divined that if lack of food is the problem he faced, going to the source of food is the solution. His instincts drove him not only to get work on a farm but also to achieve a position of control on the farm. Immediately upon

being mustered out of the army he found work as an estate manager trainee in Meklemburg, North Germany.[378]

He appears to have done well, for he recorded that less than two years later he had worked his way up to general manager of the von Treuenfels estates, which, combined, totaled almost 8,000 acres. Some historians question Bormann's assertion he became general manager in two years based on the idea that he could not have learned the entire farm business in 18 months, and the fact he was still a minor. But such a rise does not stretch the imagination given Bormann's later proven and remarkable skills of administration - and the tell-tale lapdog relationship he quickly cultivated with the lady of the estate, Ehrengard von Treuenfels, the Baroness von Maltzahn. Indeed, the friendship was maintained at least until his escape from bombed-out Berlin a quarter-century later and his disappearance into the back alleys of history; and Martin even named a daughter Ehrengard after the Baroness. In any case, Bormann honed and further integrated the skills of administration and vassalage into a potent power base while serving the Treuenfels at Mecklenburg.

The experience of the victors of the war placing the reckoning of accounts at the vanquished's door caught crosswise in both Hitler's and Bormann's throats. Consumed by hate and inspired by the power of carnage, Hitler took bitter umbrage to the mountainous war reparations the Allies demanded of the German people despite the country's then non-existent economy and starving population. In the act of demanding such onerous reparations alone did the Allies incite World War Two. For had the reparations been less burdensome it is doubtful Hitler would have had the fuel he needed to ignite with his private rancor the fires of vengeance in the German people that would propel the Nazi cause. Bormann shared Hitler's convictions, although he probably had not actually heard of Hitler by then; but for this cause both Hitler and Bormann, during their early political activism, spent time in prison. Hitler for his part in the Munich Beer Hall Putsch of 1923 that would serve as a catalyst to bring the Nazi party to power (he wrote *Mein Kampf* while in prison serving time for the crime); and Bormann for his part in the murder of a man who had betrayed the nationalist cause.

During his time as a land agent, Martin Bormann became involved in political activism. In 1923, the year of the Beer Hall Putsch, Bormann joined the Nazi's predecessor and early competitor, the Freikorps Rossbach, where he quickly rose to become one of the leaders of the Mecklenburg chapter's organization. While functioning in this position, Bormann was an accomplice in the murder of another member of the organization, Walther Kadow, a former elementary school teacher of his.[379] Kadow had been suspected of betraying a third party member, the soon-to-be Nazi martyr Albert Leo Schlageter, to the French during the occupation of the Ruhr. Bormann and others recruited a gang to execute Kadow - a mob that included Rudolf Franz Höss, the future commandant of Auschwitz. Kadow was dragged into a forest and beaten with clubs and heavy branches before having his throat cut and being shot twice.[380]

There is no evidence that Bormann had a hand in the actual killing; the mob of members under his direction performed the deed, but Bormann was tried and condemned to a year in prison for providing the weapons and leadership for the act. Years later, Adolf Hitler would award Bormann the Blutorden (Blood Order) for his part in the murder and the time he paid in prison because of it.[381]

Hitler, too, was implicated for murder when he was a young man, long before he made cold-blooded killing a component of official government policy. Hitler's suspected homicidal action, unlike Bormann's calculated, pragmatic act, was the result of jealous and unthinking rage. According to one version, he appears to have viciously murdered his niece, with whom he was having an incestuous, turbid relationship, following a violent, jealousy-driven argument. The niece, Angela "Geli" Raubal, was trying to break off their relationship.[382] "He's a monster. Nobody can imagine the things he wants me to do," she once confided. She disclosed that he had forced her to urinate on him and to perform other heinous obscenities.

He also reportedly completed a number of artistic renderings of Geli executed with questionable taste and of detestable subject matter. Bormann is said to have later located all of these pictures and quietly bought them back to avoid future controversy.

As Geli tried to extricate herself from the affair (she not only detested her relationship with Hitler but she was interested in another man) Hitler is thought to have confronted her in his apartment in Munich during one of their forced liaisons. Possibly she threatened to reveal his perverted predilections but it is not known for certain what led up to the killing or how it was committed. According to William Stevenson in *The Bormann Brotherhood*, there were witnesses to the crime - Gerhard Rossbach and Dr. Otto Strasser - but they were close Hitler cronies who refused to reveal what they knew. All that is known is that Geli's dead body was found naked on the floor, her nose broken, killed by a bullet from Adolf Hitler's pistol. [383]

For Hitler, the murder was a disaster about to be unleashed that would not only ruin his career but probably his life as well. While he had consolidated his position as leader of the Nazi Party, he was not yet a citizen of Germany much less its uncontested leader. Three more years would pass before he could protect his murderous madness with that shield. By now, September 1931, Bormann had been released from prison, joined the Nazi Party, and in six short years had burrowed his way into the party leadership and was looking for opportunities to demonstrate devotion to his demigod, Adolf Hitler. In the murder of Geli Raubal he recognized an opportunity to prove to his murderous master his allegiance and his shrewd, if immoral, penchants.

Stevenson goes on to describe how Munich's intelligent, hard-working chief inspector, Heinrich Müller, who up to that point had been working hard to eliminate the Nazi Party, had begun investigating the apparently open-and-shut case. Bormann stepped in. When he stepped back again the chief inspector dropped the case, Hitler walked free, and Müller was soon on a train to Moscow to learn the black art and septic science of running a secret police department, all at Nazi Party expense.

The net result of Bormann's arbitration? Adolf Hitler escaped that most desperate personal and political predicament to eventually become arguably the most powerful man in the world. Heinrich Müller was installed on a career track that would propel him to the pinnacle of the German police state - the police state of all police states - as chief of the vaunted and feared

Gestapo. In fact, Müller would eventually carry to his grave the nickname "Gestapo" Müller. And Martin Bormann would grasp Hitler's attention and allegiance in a way that would create a mechanism for perpetual expansion of Bormann's power base through the Master's increasing trust and appreciation. Add to this the power that would flow to Bormann from Bormann's co-opting of Heinrich Müller and the massive intelligence and control mechanism that would soon be supplied to him through the Gestapo, and Bormann's position had, indeed, increased by several orders of magnitude as a result of this single affair.

According to some Hitler biographers, the story of Hitler's murder of Geli Raubal is anecdotal and has been proven to be false. Their account says Hitler was booked in a hotel far from Munich on the day Geli was killed. This in fact may be true, but if Stevenson's version that Bormann and Müller "fixed" the outcome is true, this evidence may be part of the cover-up rather than the true account of events. Perhaps what actually occurred will never be known.

During the six years between Bormann's release from prison in 1925, when he joined the Nazi Party, and his alleged bold intercession on Hitler's behalf in Geli Raubal's murder, Martin Bormann had already climbed a considerable distance within the Nazi party hierarchy. Presumably his stature was elevated upon his very entrance into the party as a result of his already-proven commitment to the ideals and operational methods of the Nazi Party as confirmed by time spent in prison for the Kadow murder. Within two years he was the regional press officer for the Nazi Party in Thuringia and the following year was elevated to chief business manager in the same regional party chapter, as well as being made Gauleiter (Nazi Party governor) of Thuringia.[384] He was also promoted to the supreme command of the party's military arm, the S.A. (Sturmabteilung).

By the end of that same year, 1928, Bormann was working for Hitler's personal secretary and right-hand man, Rudolf Hess.[385] Bormann had been referred to Hess by Nazi Party Treasurer Franz Xavier Schwarz,[386] who recognized in Bormann a shrewd and astute financial manager and efficient commissar who could bring the party's business dealings into control, which Hess had been unable to accomplish. Because of Bormann's

penchant for working quietly in the background, throughout his career his versatile nature went largely unnoticed despite his latent genius for finance - magnified and unbridled by a complete lack of moral or ethical circumspection. His versatility revitalized the party. It made Hitler a rich man. And it made Bormann a rich man.

The following year, Bormann married the daughter of another ardent party member who would soon become the top judge in Nazi Germany, Reichstag Deputy Walther Buch, who enjoyed Hitler's respect (Hitler was a witness to the Bormann wedding, being friend of both bride and groom). With his new wife Gerda, Bormann began a family that would eventually include ten children and would, if possible, in some respects be even more perverse than the family in which he grew up. He openly and with Gerda's blessing, and, in fact, with her encouragement, carried on multiple sexual relationships simultaneously with a bevy of other women, despite universal agreement that Bormann, in the "looks" department, had little to offer women.

Physical attraction notwithstanding, his oily charm and powerful position made him an attractive coup to many ladies. Between these liaisons and his official duties he was seldom home, and when he was he ruled his wife and family with an iron fist. Yet he wrote Gerda lovingly almost every day, ensured she was always well taken care of, and, despite his otherwise secretive nature, he entrusted her in writing with his innermost thoughts and feelings on almost every subject. The Bormann's relationship is an enigmatic paradox that makes a fascinating study in and of itself of the man and the Machiavellian manner in which he operated.

Hitler continued with his convoluted relationships, too. Bormann, as Hess' deputy responsible for Hitler's safety including command of his bodyguard, [387] and for the management of his personal business affairs, found yet another opportunity to wrap his sticky tentacles around his misguided messiah. Shortly after Hitler became Chancellor of Germany in 1933, he was threatened with the knowledge being spread that he had been performing and having performed upon him perverted sex acts.[388] Henny Hoffman, the daughter of photographer Heinrich Hoffman, had told her father about her twisted trysts with the Führer. The elder Hoffman,

understandably, was at first enraged. Threatening to prosecute or otherwise make public the accusations, Hoffman demanded that justice be done.

At this point in Hitler's career his carefully-crafted image of a humble and morally incorruptible leader of the downtrodden masses - upon which his power was founded - would not stand the scrutiny of such a disclosure. Furthermore, at this time, neither Hitler nor the Party were sufficiently entrenched to employ traditional Nazi strong-arm tactics to resolve what was a personal problem. Those tactics were reserved and 'acceptable' only for resolving political issues, such as communism or "the Jewish problem."

Bormann again stepped into the breach. He suggested that Hoffman be made the Führer's personal photographer, a position that promised fame, further exposure for his photography business, and a resulting increase of income from royalties received from every copy of the photographs he took of his famous potential client. Upon hearing the proposal, Hoffman's righteous indignation over his daughter's barbarous abuse melted away into pragmatic profiteering, and the deal was consummated.

What really made Hitler take notice, however, was that Bormann had at the same time negotiated with Wilhelm Ohnesorge, the Minister of Posts, a royalty to be paid to Hitler as well as to Hoffman, whenever the Führer's likeness was used - as it was on stamps.[389] Bormann again had turned Hitler's career-threatening, possibly life-threatening, problem into a public relations and financial coup, while at the same time once again proving his unquestioned allegiance. While the income per transaction was small (the cost of a stamp, after all, is minimal), the volume of transactions was huge. The resulting income from this clever contrivance alone made Hitler a wealthy man. More important, Bormann's negotiations with Posts Minister Richard Ohnesorge appears to have opened a long relationship between the two men that culminated in an alliance that contributed to the political fortunes of both; and that was central to Bormann's later escape from Berlin and his post-war survival.

Hitler, who enjoyed his new-found wealth but disliked the details of accumulating it, and who in fact, for political purposes carefully promoted an image of austerity, quickly recognized and appreciated Bormann's astute perceptions; taciturn, confidential nature; and "fiscal" talents. Bormann

would go on to devise and execute a great many other schemes through the years, legal and otherwise, that lined the Führer's pockets - as well as his own.

Shortly after the Henny Hoffman affair, Hitler appointed Bormann to be Hess's chief of staff. The appointment came, no doubt, not only as a reward for Bormann's assistance with the Henny Hoffmann and Geli Raubal incidents and other past accomplishments, such as the Kadow murder, but because Bormann was also piling up a body of work that aided Hitler in a wide variety of other functions. In 1930, for example, recognizing party coffers were in dire straits, Bormann created the Hilfskasse, a compulsory "accident insurance" fund for party members who were injured while brawling with communists.[390] All party members had to pay into the fund. This capital not only supported the wounded but also generated a substantial surplus that allowed the party to fulfill significant financial obligations and still provide funding for future operations.

Shortly after Hitler took office, Bormann also founded the Adolf Hitler Endowment Fund of German Industry.[391] The endowment "strong-armed" companies that enjoyed success as a result of Hitler's economic policies into making contributions to his government. The funds were then hoarded in Hitler accounts managed by Bormann or dispersed according to Hitler's and Bormann's directions.

By the end of 1934, Hitler had been in power a year, Bormann was serving as his personal secretary and business manager, and considerable advances had been made in Bormann's efforts to weld himself to the man he could now, with the rest of the nation, call his Führer. Bormann had become inseparable from the Führer, following him night and day and writing nearly his every word on little white sheets of paper, to be acted upon immediately or to be treasured up for a future history that he was certain would one day be chronicled in a tome that would glorify his Master.[392]

In 1935, leaning on his old estate management experience, Martin Bormann initiated construction of and oversaw the management and building of the immense, now nearly mythical, multi-million Reichsmark Bavarian complex at Berchtesgaden that Hitler would come to regard as his home and sanctuary from the demands and pressures of public office.

In May 1941, Bormann's position rose again when Rudolf Hess, Bormann's direct superior, in an act that stunned the world, secretly flew his personal Messerschmidt airplane to Scotland. His self-appointed purpose - which he hoped would bring him back into the good graces of Hitler, with whom he felt a rift was forming - ostensibly was to sue for peace and a united German/British front against Bolchevism. He was immediately rewarded with imprisonment in the United Kingdom. As a result, Bormann was given on a silver platter exactly what he was prepared to work - and conspire - hard for: the chancellorship of the Nazi Party.

Some have suggested that Bormann may have been responsible for inspiring Hess's deranged attempt [393] - may have, in fact, suggested it to his superior with foreknowledge of the results - in order to remove Hess from blocking Bormann's path to greater power. Whether true or not, Bormann did ascend to the position of Nazi Party Chancellor by Hitler's command, which was added to his responsibilities of personal secretary and manager to the Führer that he had already held before Hess's defection.

Hitler also discovered in 1941, through one of the greatest spy coups ever, that Roosevelt and Churchill had established a secret transatlantic telephone connection.[394] Charles Howard Ellis, possibly one of the Nazis most valued undercover agents as second-in-command to the remarkable Sir William Stephenson (who ran the combined intelligence efforts of Britain and the United States, reporting directly to Winston Churchill) had received information about the hotline and passed it to Heinrich 'Gestapo' Müller, his Nazi controller.

"Gestapo" Müller was the same Heinrich Müller who was chief inspector for the city of Munich with whom Martin Bormann had allegedly negotiated a resolution of the Geli Raubal murder case. Müller was now, perhaps as a result of those negotiations and the path Bormann had put him on, the head of Germany's feared secret police, the Gestapo.

On hearing of the Roosevelt/Churchill hotline, Hitler quickly passed an order to Bormann to break into it and have the "confidential" conversations decrypted, at whatever cost necessary. Bormann turned again to another of his former conspirators, Richard Ohnesorge, the postal minister.

The Minister of Posts maintained a research and development institute inside the ministry that worked on an eclectic assortment of scientific problems. The work was well-funded from the regular postal service. When, several months later Ohnesorge's program successfully decrypted its first transatlantic conversation, Hitler was delighted, and, from then until the end of the war, he gleefully read the transcriptions of these conversations only hours after the words had been breathed from the mouths of his two great enemies.

The research institute of the Ministry of Posts was not working on cryptology only. Great amounts of Reichsmarks were being invested in nuclear bomb development,[395] as well, of which Ohnesorge - who, as a doctor of physics and mathematics, was on the Reich Research Presidential Council,[396] the organization that oversaw nuclear development for Hitler - was a great proponent. As noted previously, at least twice Ohnesorge personally reported before Hitler the progress and merits of the German atomic bomb programs. Undoubtedly Bormann, in his position as Hitler's secretary and personal manager, and later as his secret overseer as well as through his relationship with Ohnesorge, was privy to these meetings and information. True to his shrewd nature, Bormann must have divined its worth.

Hitler's admiration and dependence on Bormann grew to immense proportions - noticed, but with little concern until too late, by the court elite. None of them appeared to see in the crude, bulbous, smarmy Martin Bormann the cunning and dangerous threat he represented to them.

The men Bormann considered his competition for Hitler's attention and as the Führer's possible eventual successor, Göring, Goebbels, Himmler, Speer, and at one time even Hess, were men, like Hitler, who championed the grand design of Nazism in overblown speeches, sweeping dramatic demonstrations of their power, and open adulation of their Führer, for which they enjoyed in return the adulation of the crowds over which he lorded. They echoed Hitler but, with the possible exception of Speer, added little to him and therefore they added little to their own potential as well.

Bormann was an altogether different animal. Instead of assuming the voice of Hitler, which after all was Hitler's greatest strength and needed little

assistance, Bormann was Hitler's hands and feet, his eyes and ears. He did the details and dirty work Hitler detested with an eye dedicated to the same purposes the Führer espoused. Bormann did the Führer's bidding, anticipating his wants and requirements without being told, and then fulfilling them with force and power without having to be directed; so much so that years later, when Bormann started to plant in Hitler's mind his own ideas and then act upon them, Hitler did not perceive the transition. As a result, Bormann to a large degree eventually became Hitler's heart and mind as well as his eyes, ears, hands and feet; controlling him and the empire he governed without the master ever suspecting control had slipped from his hands.

Bormann had positioned himself specifically for this task. Not only had he catered to Hitler slavishly to create an unbreakable bond of appreciation, trust, and dependence - it is important to note here that Bormann's allegiance to the Führer was always genuine and total - but Bormann continually cultivated and expanded his resources to forever widen his web of control on behalf of himself and the Führer.

According to biographer William Stephenson, Bormann's great talent was a genius for "what really mattered in a bureaucracy." [397] Stephenson goes on to explain how Bormann dredged police, military and political organizations to form alliances, either by force or by finesse, that he would later manipulate to fill his purposes. Add to this his great propensity for navigating in and, in fact, forming, molding and operating bureaucracies, and one sees a master who controlled all the strings that ran the party and the government. His mind "thrived upon this kind of nutrition," [398] Stephenson wrote. "Where the Führer's genius and aura failed to work, (Bormann) would step in and exert power," [399] wrote Joachen von Lang in his biography of Bormann, *The Secretary*.

Bormann used the bureaucracies around him to consolidate his position and control the forces - pro and con - against and within which he had to operate. These bureaucracies were his source of all control through the currencies they commanded, hard currencies such as the millions of Reichsmarks cached in his, Hitler's and the party's various funds and business operations,

and soft currencies, like the personal intelligence collected on various leaders inside and outside the party and the country.

The constitutional government of Germany controlled the country's legal administration; in the early years of Hitler's chancellorship the party, on paper, held little power. Bormann, as primarily a functionary of the party, therefore, could only administer in party matters, not government policy. To circumvent this inconvenience Bormann created and constantly grew a "shadow bureaucracy"[400] over the ensuing years that duplicated each crucial government function and then allowed him to control the strings he desired to pull: The state police was shadowed by the Gestapo, with Bormann's alleged protégé Müller at its head.

The province chiefs and mayors were shadowed by Nazi Party Gauleiters (district governors), and their administrative regional structures, who vied for control of their jurisdictions. Bormann would usually side with the Gauleiters, or convince Hitler to do so, thus empowering them over their counterparts and expanding the influence of Bormann, leaving Gauleiters and other party officials in his debt [401] - officials who would eventually virtually run the country when Hitler later placed the Nazi Party in control.

Bormann also placed large numbers of key officials under his bondage through bald-faced bribery, providing "discrete distributions of loans" from party coffers to whoever he deemed would be a valuable leader to own. [402] "Almost all the top party functionaries received gifts from this fund," [403] wrote Speer, who added that such gift giving, though innocuous, had the very real effect of conferring more power upon Bormann than almost any other person in the land.

Himmler approached Bormann for one such loan of 80,000 Reichsmarks so he could buy a house near Berchtesgaden for his mistress and their illegitimate child.[404] Bormann not only produced the loan but he encouraged Gerda to befriend Himmler's mistress. The women would share cozy conversation and children's clothing in the years ahead, until Bormann severed Himmler's relationship with the Führer in the waning days of the war. But the Bormanns' and Himmlers' "pseudo-friendship,"[405] and Bormann's ongoing contributions to Himmler's personal cache thereafter - totaling millions [406] - was a valuable protection for Bormann later when

the real extent of his power became apparent among Hitler's coterie and envious courtesans tried to destroy him. "Again and again I have come to terms with Bormann although it is my duty really to get him out,"[407] complained Himmler. Knowing Bormann had "the goods" on him, there was little Himmler could do to dethrone the Führer's Iago. In fact, it is doubtful Himmler really wanted to topple Bormann, since much of his personal income would be lost if Bormann fell.

Bormann, using Müller and his Gestapo, as well as other vehicles, had access to a comprehensive collection of files, reports and dossiers that provided a solid engine of power by blackmail [408] to drive Bormann's schemes. The files included virtually every ranking member of the Nazi Party, including possibly Hitler himself, if Hitler's murder of Geli Raubal and the Henny Hoffmann incident are true.

As Hitler pushed his foreign policy toward war with the rest of the world during the mid- to late-thirties, Bormann increasingly and on his own volition dominated domestic affairs. By the time the war actually broke out in 1939, the party was firmly in control of the government. The official mantle of Nazi power now placed upon Bormann, combined with the very real puissance he practiced through bureaucracy, blackmail and bribery, placed Bormann at the pinnacle of power. Only Göring, Goebbels and Himmler could hope to unseat him; and Himmler, as has been described, was in a poor position to do so.

Bormann did not stop. He continued to increase and fortify his position throughout the next year. In the winter of 1942, the others distracted by the war and Hitler increasingly relying on Bormann to manage administrative affairs while he pontificated military strategy, Bormann slapped his fellow courtesans with a most revealing, direct and jolting blow that for the first time unveiled him openly as a contender for the throne. In an alliance with General Keitel, Hitler's military second-in-charge, and Hans Heinrich Lammers, Chief of the Reich Chancery, in other words the government's chief legal minister, Bormann created the Committee of Three through which all business directed for Hitler must pass, effectively cordoning off Hitler from all others.[409] Hitler, appreciative as always that distracting

details were being lifted from his busy schedule, supported the arrangement.

Barely half a year later, in July 1943, Bormann again redefined his role as secretary to the Führer, again with Hitler's consent, to proclaim himself the sole mediator between the government, the party and the Führer,[410] thus eliminating even Keitel and Lammers from the picture. Bormann was now the sole link between Hitler and his chiefs. Speer noted with disgust how important issues and programs could not reach Hitler without first going through Bormann's hands and first having his blessing before even being considered by the Führer.[411]

With Hitler insulated from opposing views on critical affairs, Bormann could now set and execute agendas, needing Hitler only to rubberstamp his plans. Speer asserts that, as an important military minister, he was not among those excluded from Hitler's presence, but in reality even Hitler's most favored associates were dealt the indignities of having to crawl to Bormann for access to the Führer. Often an audience was denied and Bormann responded alone. For example, it was Bormann, not Hitler, who answered in the negative Speer's request of Hitler that he be awarded jurisdiction over the important V-1 and V-2 rocket projects and other research and development programs based at Peenemünde.[412]

Simon Weissenthal wrote that many orders bearing Hitler's signature showed obvious evidence of being the product of Bormann's mind. And Göring stated flatly that many documents issued from Hitler bore the unmistakable stamp of Martin Bormann's heavy hand.[413] Bormann now controlled Hitler and guided from him the decisions that were running the country. According to biographer Paul Manning, "Martin Bormann was now the leader in fact of Germany."[414]

William Stephenson agrees that Bormann covertly governed the Third Reich, adding that historians have consistently misunderstood both "Bormann's role and his character." Bormann was not interested in the fame and glory the rest of Hitler's courtesans desired, according to Stephenson, he craved the real power.[415] Bormann was "the secret master of a despot,"[416] said Gauleiter Hans Frank. Joachen von Lang, another of Bormann's biographers, asserted, "Bormann now considered himself the

actual heir of the Third Reich,"[417] if not the one so stated in Hitler's will. Bormann now was looking down from the top of the heap, and carefully watching his quibbling cohorts.

"Those who were Bormann's rivals and even enemies always underestimated his abilities,"[418] lamented one of those enemies, Walter Schellenberg. "They spoke about (Bormann), calling him a bootlicker and often a pig," described Hitler Youth Leader Baldur von Schirach, continuing, "If cartoonists had drawn his picture, his shape, bulk, short legs, mug - it actually would have turned out to be a pig."[419] Schellenberg, too, likened him to a wild pig digging for potatoes.[420] Most of Hitler's retinue simply called him "Hitler's evil spirit"[421], or "The Gray (or sometimes "Brown") Eminence"[422] - behind his back, of course.

By now Bormann was a general in the SS commanding a 1 million man army; he controlled vast sums of money that he used freely for his own legal and illegal purposes; he had at his fingertips enough information to pull down any party or government leader in the Reich; and he held in his hands the strings that controlled Adolf Hitler. At the end of the war, nobody in Nazi Germany had more power than Martin Bormann.

Chapter Eleven - Operation Fireland

"Bury your treasure, for you will need it to begin a Fourth Reich." [423]

Adolf Hitler to Martin Bormann in 1943

"When the story of Martin Bormann is written it will reveal him to be the man largely responsible for West Germany's postwar recovery...." [424]

The New York Times, March 3, 1973

The turning point against Germany during World War Two was not the loss of the Battle of Britain or the mounting of D-Day on Normandy's shores. While the air battle over London was an important German defeat that allowed Britain to fight on - alone at the time - other than as a moral victory, taking the islands of the United Kingdom would have had little strategic value to Germany before the United States joined the conflict. And by the time Allied soldiers stormed the beaches of northern France, the tide of war had already turned against the Nazi horde. D-Day, while imperative and impressive, was actually the beginning of massive mop-up operations.

During the autumn and winter of 1942, Germany suffered the most pivotal defeat of the war at the Battle of Stalingrad. From that day on, the outcome of the war was almost fixed. And almost everybody knew it. Until the moment when Hitler looked up from the strategic objective he was pursuing in The Soviet Union, the oilfields and refineries of Ukraine to fuel his war machine, Germany was winning the war. But the Führer could not resist the moral victory that taking "Stalin's City," now so close, would be. Planning a quick campaign that would take mere weeks, he swung his Sixth Army from its course southward toward the oilfields and refineries, turned them to the northeast, and attacked. The bold move was at first successful and Stalingrad was captured. But in the frozen winter months of 1942-43, a four

million-man Russian army surrounded the 330,000-man force of General Friedrich Paulus.

The Soviets laid siege. They starved the Germans. They ran them out of ammunition. They ran them over on the rock-hard frozen snow under the treads of their heavy tanks, the Wehrmacht infantry unable to dig foxholes into the steely ice to avoid being crushed. By the time Paulus surrendered, SS forces had barely been able to break through and rescue only 5,000 survivors. The rest were force-marched to Siberia and most never heard from again. After the moral loss at Stalingrad and the tactical loss of oil to feed the hungry Nazi war machine, ultimate surrender for Germany was just a matter of time, barring an unforeseen miracle.

Martin Bormann, true to his proven, pragmatic ways, was uniquely prepared to deal with the former eventuality, and possibly capable of providing the latter. Through his old friend at the Reichspost, Richard Ohnesorge, it appears likely he was supporting a program that could furnish the miracle needed - Manfred von Ardenne's uranium enrichment program. The program just required enough time.

On the other hand, if time should run out, the last thing that Martin Bormann would allow his Fatherland to endure was another rapacious war reparations assessment like that forced upon it after World War One. The Allies could kill the people, plunder the land, rape the women, and level the cities, but in his shrewdly insightful way, Bormann knew that they could not own Germany itself if they did not own Germany's wealth.

In the spring of 1943, Bormann began to look for ways to conserve the Reich's riches if the war was lost. He started with Aktion Feuerland, "Operation Fireland." As German forces had overrun country after country, stormtroopers would follow behind advance waves and plunder each nation's valuables [425] while the Gestapo gathered its Jews into ghettos and concentration camps, relieving them of every gram of valuable property they owned; including the gold and platinum in their teeth. The treasure consisted of hundreds of millions of Reichsmarks; boxes and boxes of gold and platinum, pearls and diamonds; crates full of the priceless art of Europe; and billionaire bundles of stocks and other securities.[426] The loot was amassed in a series of bank safes and underground vaults throughout

the Reich - until Martin Bormann was made aware of its existence by one of his many internal intelligence conduits. In late 1943 he took control of much, though not all, of this booty and informed Hitler of its existence and a plan he had formulated for its conservation.

"Bury your treasure, for you will need it to begin a Fourth Reich," Hitler had responded. With that blessing, Bormann took control of at least six U-boats,[427] some of them unmarked, from Gross Admiral Karl Dönitz, and garnered the support of Generalissimo Francisco Franco to headquarter the U-boats in the Spanish port cities of Cadiz and Vigo. The U-boats for the next two years, supplied by cargo planes from Germany that transported the treasures to the coastal towns on the Atlantic, began a non-stop circuit transporting the treasure to the far southern reaches of Argentina - the region known as Tierra del Fuego, or Land of Fire. At their destinations they were unloaded by Bormann's mysterious minions and deposited into a variety of international bank accounts controlled by a cryptic cabal of Bormann partners. This was Operation Fireland.

But Bormann was not satisfied just to rob the SS of the treasure trove it had stolen from murdered Jews, plundered citizens and overrun countries. Earlier in 1943, he had recognized for himself the value of masterpieces hung in museums and those owned by Catholic and other churches and held in cathedrals, monasteries and convents throughout the Reich. He initiated a program to collect all that could be gathered and even ordered high-ranking members of the party who had already assimilated such artwork into their own collections to turn them over to the Party Chancellery.[428] From this time to the end of the war, one-third of Italy's great art treasures, and much of the rest of Europe's masterworks collections, were lost to the Nazis; a fair share of it going into Bormann's South American hideaway.

Bormann appears to have laundered some questionable treasures of his own through Operation Fireland, as well. For example, in 1942 Bormann started heading a Nazi project designed to weaken the British war economy while providing currency to pay for German armaments production. The British currency counterfeiting program overseen by Bormann was printing 400,000 notes a month, which eventually totaled \$600 million.[429] Bormann deposited the money into foreign banks through his mysterious

partners. Later he exchanged the funds into a more stable currency, often dollars, and then, instead of using the funds for the munitions for which they were intended, he would often hold them in one of his "ghost" accounts for his own future use. Of the \$600 million of counterfeit currency processed, approximately \$300 million has never been accounted for, presumably lost to Bormann's enigmatic interchange.

Bormann also generated huge sums of money through a vehicle that he had already utilized at least twice before to the benefit of the Führer and the party - the creation of a fund designed to finance a specific task and to which all able Germans were compelled to contribute. In this case, the "Winterfund" was established ostensibly for the welfare of the soldiers and civilians impoverished by the war.[430] Besides mandatory donations, the fund was also supported by wealthy industrialists who were wined and dined at concerts they were expected to attend, all the while being coerced into contributing huge amounts of money, sometimes as much as 100,000 Reichsmarks in a single donation.[431] Eventually the fund accumulated over 3 billion Reichsmarks but little of it was used for the support of the needy. Presumably, at least part, if not a great percentage, of these funds may have been included in Operation Fireland.

Estimates of the value of Operation Fireland range from the unbelievably low \$17 million, considering the sheer volume of non-stop transport voyages of the six U-boats over two years, and subsequent value of the treasures, into the more probable hundreds of millions and possibly even billions of dollars. But Operation Fireland was small change compared to the blockbuster business venture Bormann would soon unveil.

As the Thousand Year Reich began to crumble barely a decade after its inception, memories of Germany's World War One failure were still fresh in Martin Bormann's mind. A devastated citizenry impoverished by the war had been saddled with yet even more hefty burdens than what the country had already lost in the conflict. From the scant assets that had survived, the Germans were forced to pay the costs of the losses of the victors, as well; to replace their burnt out cities and towns, the sunken ships and shot down airplanes, their industries and lost revenues. Because the conquered had so few resources left that there were insufficient assets with which to make

recompense, their futures were mortgaged - a whole generation was indignantly indentured to its mortal enemy of yesterday. While the fighting had ended, the war smoldered on in the angry hearts of the vanquished, to erupt two decades later in World War Two. Now the pattern was repeating itself. But the bitter gall of the last defeat was not going to be repeated in this one. Not while Martin Bormann had a hand in the outcome.

Reichminister Hermann Göring was responsible for the Reich's economic Four-year Plan and, as a result, the economic heads of all the occupied countries (and surreptitiously, many of the neutral nations, also) reported to him. These countries included France, Belgium, Holland, Czechoslovakia, Denmark, Norway, Yugoslavia, Austria, Poland, Spain, Sweden, Switzerland, Turkey, Portugal, Finland, Bulgaria, and Romania - virtually all of Europe except Russia - and also included many Latin American countries.

What is little known, however, according to Nazi In Exile author Paul Manning, is that Martin Bormann was the Party Minister of Economics [432] and therefore he oversaw all economic issues for the entire Reich, even outranking Hitler's then-chosen heir, Göring, in financial matters. In this role, on the heels of the Stalingrad defeat, Bormann had already begun to plan for the economic protection and resurgence of Germany following the war. Wall Street Journal reporter Greg Steinmetz writes of how top Nazis prepared for German post-war emergence by calling together a meeting of many of Germany's top companies in August 1944.

The meeting, held in a hotel in Strasbourg, France, was convened expressly "to discuss financing plans for the Fourth Reich,"[433] according to Steinmetz. Steinmetz's article also included information about Operation Fireland. By the time the Steinmetz article ran in April 1997, however, it was very old news. Decades before, Bormann biographers Paul Manning, William Stevenson and Ladislav Farago had already written in detail about Nazi exporting of plundered treasure and the secret economic summit in Strasbourg. What was new was the fact no rebuff of Steinmetz or the Journal appears to have followed for revealing the information. In the past, accounts printed about Operation Fireland and the Strasbourg Conference had been squashed or quickly debunked.

For example, when this author initially proposed Critical Mass to a publisher using only Operation Fireland documentation cited by Farago in his book *Aftermath*, I was told Farago had forged and planted the documents within the top secret files of foreign governments in order to support his "fictitious" claims. Apparently there had been quite an international row in the publishing world over this deception, which occurred when I was too young to have taken notice. At any rate, Farago and his book had been publicly and acrimoniously denounced and Farago died unvindicated a few years later.

The publisher's initial assertions convinced me of the correctness of the dismissal of Farago's claims, thus stopping me from pursuing this book further - at least for a time. I later came across Paul Manning's treatise of the despoiled Nazi loot and the Strasbourg meeting in his book, *Nazi In Exile* and again in William Stevenson's book, *The Bormann Brotherhood*. The same events that Farago had revealed in his book were proven in these accounts, as well as some very important new information, but in many cases using different documentation.

I contacted a member of the intelligence community with whom I had connections and whom I was told had researched the subject matter of these Nazi business dealings. Without mentioning Manning or Stevenson by name, he asserted that what they had written about Nazi involvement in post-war international business preparations was true and that United States government intelligence agencies - he mentioned the CIA and its predecessor the OSS by name - had conducted a full inquiry into the issue. He asserted that these agencies had identified all of the relevant business dealings, had broken up the German cartels and stripped the Nazi owners of their financial properties and placed those instruments in the hands of the United States Alien Property Custodian program. He "shared" this information with me in the spirit of proving that, while certain German businessmen and high-ranking Nazis- he mentioned Bormann specifically - tried to survive the war supported by Nazi funds invested by clandestine means, the United States had found and uprooted the deception. Therefore, he insisted, there was no story and no need for me to research further.

But if what Paul Manning and William Stevenson had written about Nazi international business activity is true, then the same assertions that Ladislav Farago had earlier written about it are likewise true, as is other very essential information about who they all agreed initiated the Strasbourg Conference. The effort to vilify Farago therefore was a smokescreen. With the knowledge my original premise was intact and there was now an effort being put forth to fog the truth, I put forth, more carefully, once again on this book. The fact that the Nazi scheme had supposedly been put down was of no account to me, the mere affirmation that the Strasbourg plan was made and initially carried out is the cogent point for the premise of this volume. In later research I discovered, however, that the story about the financial properties being expropriated once and for all by the United States government, while true in form, was not true in reality. It was yet another effort to create a fog behind which the truth could be hidden. I fully expect that when Critical Mass is published, it, too, will be countered in a similar way, or possibly in a different manner.

In any case, the fact that Steinmetz was allowed to run his article unchecked was an important event that begins to blow the haze away from the central truth of these events. Perhaps the reason the article ran unassailed was the irreproachable reputation for integrity of The Wall Street Journal and its sheer stature in the world of journalism. Perhaps the article was allowed to run because it was triggered by a United States Senate investigation initiated in response to Nazi victims who are now United States citizens trying to retrieve personal property originally looted from them by the Nazis. Probably both reasons are true to some degree. But it is likely the most important reason the Steinmetz article was allowed to run uncontested was that it still hid the issues at heart, which are what the United States government is really protecting.

What are those issues? The first is that Martin Bormann was the central player in the Strasbourg Conference. The second is that Bormann escaped Germany at the end of the war and lived for many years rebuilding and controlling the economy of West Germany and much of Europe and Latin America, and that he did this all with the protection, support and collusion of the United States government.

While Steinmetz's article does not say so, Manning's and Stevenson's stories both have a central point in common regarding the Strasbourg Conference; and Farago's work, illustrated by other events, although not detailed in the specifics of the conference itself, supports the point: Martin Bormann initiated the conference, controlled it and oversaw its results for many years following the war. Bormann's yet unborn Fourth Reich, by war's end, had already ratholed \$800 million plus 95 tons of gold.[434] And that was just by war's end.

The Strasbourg Conference where Bormann introduced a new economic initiative, was convened under the highest secrecy and security in August 1944, to discuss post-war preparations between the Nazi government and the major German industrialists, as was so often the pattern with other issues since the end of World War One.[435] Bormann assigned Dr. Bosse, of the Ministry of Armaments, and Lieutenant General Sheid to conduct the conference in his behalf.[436]

"German industry must realize that the war cannot now be won," Bormann told Sheid, continuing, "and (Germany) must take steps to prepare for a postwar commercial campaign which will in time insure the economic resurgence of Germany." [437] What Bormann was proposing was devious, conspiratorial and illegal, even within Nazi Germany. To avoid security breaches, therefore, he ensured in every possible way that the strictest secrecy was maintained. The meeting was held in a hotel conference room insulated from visual or audio surveillance by having rented all the rooms above, below and on all sides of the chamber. All attendees and their personal possessions were thoroughly inspected physically and electronically by SS technicians.[438]

High-ranking industrialists from a spectrum of German firms listened intently to the amazing proposal: All corporations that agreed with Bormann's plan to conserve their businesses for post-war operations and to share post-war revenues with selected underground Nazi operations would, until such time as the Third Reich failed, be protected by Bormann from the "Treason Against The Nation" law.[439] This law required death for all those who subverted currency regulations, traded in foreign currency or concealed ownership of foreign currency. The law also precluded firms

from being involved in almost any type of partnership, joint venture or licensing agreement with any country outside of the Reich or the boundaries of its allies.

In reality, many of Germany's largest companies were already engaged in relationships with businesses neutral to or hostile to the Reich, including Germany's largest conglomerate, I.G. Farben, but the government had been turning a blind eye in order to keep the huge amount of capital these companies generated rolling in. The waiver of the Treason Against the Nation law proposed at Strasbourg was therefore not only an incentive to those German companies that desired to survive the war but were not yet participating in such activities, but it was a veiled threat to those that were already circumventing the law.

To them Bormann was saying, in essence, if you do not share the wealth you are already gaining, we will have your heads by enforcing the law. The Strasbourg announcement, for these companies, amounted to a form of blackmail; which they were glad to pay not only to save themselves but to save their companies from the post-war commercial blood bath that was sure to come.

According to Dr. Bosse, participating companies' and Nazi funds were to be invested in foreign financial institutions while the Party maintained access to them, "in order that a strong German empire can be created after defeat." [440] Bosse went on to explain: "Industrialists with government assistance [meaning with Bormann as their mentor and protector - author's note] will export as much of their capital as possible, capital meaning money, bonds, patents, scientists and administrators." [441]

While hard currency was valuable, the currency with real potential was the "soft capital" the industrialist firms held: the trade agreements, patents and braintrusts that generated colossal revenues in perpetuity. The potential income of such intellectual and proprietary properties as international licenses sold to use the patents on stainless steel, synthetic fuels and rubbers and other commercial advances, and control of the braintrusts who created them was huge, generating millions, possible tens or hundreds of millions of dollars per year. Many international companies, such as Bayer, Winthrop Chemical, AGFA-ANSCO, Hoescht and DuPont to a large degree owed

their existence and continuing prosperity to exclusive use of I.G. Farben patents and licenses alone.[442]

In addition to exporting technologies, the German firms were directed to borrow against these and other assets to obtain more hard capital and thus be able to more quickly export additional hard currency [443] into what was now being called Bormann's "Flight Capital" program. Technical and business bureaus were to be established for each industry and in each foreign office of each company, with a covert Nazi liaison officer in each office to oversee and, where possible, personally manage the operations. [444] From among these liaisons German economic specialists successfully penetrated 11 nations' economies, in addition to Germany's, and eventually controlled them in the post-war period.[445]

Bosse reported to Bormann after the meeting that the terms of the Strasbourg conference had been agreed to by all involved and therefore the new Flight Capital Program had been successfully initiated.[446] Bormann in turn established 750 camouflaged corporations under the names of companies or individuals for which he held power of attorney, and therefore over which he had total control,[447] as vehicles for managing the income of the Flight Capital Program. These businesses were scattered across countries throughout Europe, the Mid-east and Latin America. Holdings were even kept in bank accounts in the United States of America,[448] some of which eventually were in his own name, including accounts with Manufacturers Hanover Trust, The Chase Manhattan Bank, and First National City Bank, according to author Paul Manning.

Although not listed as a company represented at the Strasbourg conference, Germany's largest industrial cartel, the chemical concern I.G. Farben, was active in the Flight Capital Program as well. In fact, it had not been necessary for Farben representatives to attend the program's introduction at all because its leader, chairman and president Hermann Schmitz, had been integrally involved in the Flight Capital Program's creation. I.G. Farben had supported the Nazi cause from the beginning of its climb to power, having donated generously through Farben's intelligence, propaganda and political economic operations, known as I.G. NW7.[449]

In his Wall Street Journal article, Steinmetz unwittingly hints at this involvement - and particularly at the Flight Capital Program - in a portion of the article that reviews reports that Germany's Bosch AG company during the war allied with the wealthy Wallenberg family of Sweden to camouflage German funds. Robert Bosch, the founder of Bosch AG, was the uncle of Carl Bosch,[450] the founder of I.G. Farben. Close relationships were maintained between the companies.

Before taking Carl Bosch's place at the head of I.G. Farben, Schmitz had been Bosch's top lieutenant and handpicked successor.[451] He had overseen all of I.G. Farben's international business, and, between the wars, was responsible for concealing Farben's huge global income from German tax administrators through the use of foreign "blinds" he had created. These camouflage devices operated remarkably like the alleged arrangement between Bosch A.G. and the Wallenberg's.[452]

Before the war, Schmitz took over the helm of I.G. Farben and had become a close "confidant and advisor to Martin Bormann,"[453] writes Paul Manning in his book *Martin Bormann: Nazi In Exile*. Manning adds that Bormann was a student in a sort of personal, and confidential, tutelage under Schmitz.[454] Bormann, in fact, surreptitiously gave the title of "Secret Councilor to the Nazi Party and Martin Bormann," to Hermann Schmitz,[455] in return for the latter's intellectual contributions and mentoring. Under Schmitz's direction and with the complicity of Bormann, I.G. Farben looted the chemical properties of the nations Germany had conquered: Austria, Czechoslovakia, Poland, Norway and France.[456]

By the end of the war, Farben had interests in over 700 companies, not including operations within its own corporate structure that stretched across 93 countries.[457] In all, Schmitz, in league with Bormann, who cleared the path of government constraints, expanded Farben's foreign investment to at least 7 billion Reichsmarks during the war.[458] As the two men weaved their web they made many pacts; among them one that ensured all Farben leaders overseas were Nazi Party members accountable to Martin Bormann - a precursor to the Flight Capital Program. Working together, the two men expanded this relationship to other German firms in the form of the Flight Capital Program.

The objective of the Flight Capital Program was not to make money in and of itself. The objective - Bormann's master plan - was to save and protect Germany's industries and economy from being looted at the hands of the conquerors as had happened at the end of the First World War. After the war, the Flight Capital Program would control and direct not only the German economy, but also other economies linked to the underground Fatherland, in an effort to produce a quick German rebirth and eventual European economic domination. Bormann and Schmitz met on multiple occasions while developing the Flight Capital Program.[459] So thoroughly did Bormann capture all of the funds transferred out of the Reich that when Hermann Schmitz died in 1960, at the age of 79, he was nearly a pauper. [460] "To this day no one has been able to explain what happened to his fortune. Few who knew him can believe it doesn't exist," wrote Joseph Borkin, author of *The Crime and Punishment of I.G. Farben*.

Strategies for covertly redeploying the economy included the implementation of a "foreign trade offensive," according to Peter Hayes' book *Industry and Technology: I.G. Farben in the Nazi Era*. [461] They also included a "European economic community" that positioned Germany as the hub and "flag bearer" of a confederated Europe that would "predominate by 'elastic political methods'... not with brutal force." These elements are certainly recognizable in the history of post-war Europe as it actually unfolded, and, in fact, continues with a high profile in the European economic model of today. The evidence reflects that the Flight Capital Program and Bormann's partnership with I.G. Farben not only paid off as planned, but it set the foundation for the European economy of today, and by extension that of the world.

But in April 1945, with Berlin succumbing to the Russian siege, a hysterical Hitler visibly crumbling in front of him, and the Reich reeling in its death throws, Bormann, true to his brutish, realistic, pragmatic nature and leaning heavily on his incomparable bureaucratic proclivities, was focused on escaping. Bormann was willing, able and self-authorized to negotiate any agreement that secured his - and presumably, at one time, the Führer's - escape. Signals from "The Brown Eminence's" radios bounced to and from various German generals authorized to negotiate with Russian and United States military leaders. The Allies, in complete control and determined to

achieve nothing but total and unconditional surrender - outwardly at least - would not negotiate. Escape was the only option.

Chapter Twelve - The Pig Finds A Potato

"Irrefutable proof exists that a small plane left the Tiergarten at dawn on April 30, flying in the direction of Hamburg. Three men and a woman are known to have been on board. It has also been established that a large submarine left Hamburg before the arrival of the British forces. Mysterious persons were on board the submarine...." [462]

From a Soviet intelligence commission of inquiry report, as quoted by James McGovern, CIA agent in charge of researching the post-war survival of Martin Bormann

"Stalin told Harry Hopkins in Moscow that he believed Bormann escaped. Now he went further and said it was Bormann who got away in the fleeing U-boat. More than that Stalin refused to disclose." [463]

William Stevenson, author The Bormann Brotherhood

"That damn Martin made it safely out of Germany." [464]

Walter Buch, Top Nazi judge and Martin Bormann's father-in-law, upon his deathbed

"Of course [Bormann escaped]. He is a natural survivor." [465]

Colonel General Alfred Jodl at the signing of the European capitulation when asked if Martin Bormann made it safely out of Berlin

For over fifty years a debate has raged about whether Martin Bormann escaped from Berlin in the spring of 1945 or whether he was killed in a fiery explosion on Weidendammer Bridge in that city, or whether he mysteriously died a few hours later at the Lehrter Station Bridge a few miles away. Over that half-century, so many accounts of his last days in Berlin have been generated, fabricated, amended, modified, denied, rebutted, investigated, expunged, reborn, reshaped and abridged that

nothing is certain but a black mist of confusion and suspicion that hangs over the whole affair like a thick pall. Indeed, the truth may never be known. Not just because the evidence supporting any outcome is inconclusive, but because there seems to be few participants who were or are objective on the matter, and therefore the testimony and evidence they provide must, of prudence, be viewed with varying degrees of skepticism. What is known, despite the bleak picture that is always painted, is that 90 percent of those who were in the bunker at the end survived.[466]

Why not Martin Bormann? The only "eye witnesses" to Bormann's death did not actually verify either that they were certain they saw him die, or that they were sure they saw him in death. All eye witnesses were avowed Nazis and therefore may have had vested interests in the world thinking Bormann was dead, and therefore, the argument goes, may have provided misinformation in evidence of his death. Additional "proofs" of Bormann's demise beyond the eye witness accounts did not surface until decades later. The veracity of their provenance has been effectively argued pro and con since.

Those who argue for his death, most notably the German government and, in a more innocuous manner, certain United States agencies, almost invariably have important interests of their own to protect. Many of those who say he survived seem to have their reasons for maintaining his ongoing existence, as well, sometimes based on only the flimsiest evidence to support their claims, but often with substantially more confirmation.

The evidence, in fact, is significant in support of both theories and, despite claims of certainty by both camps, a detailed study of all the evidence available tends to muddy the already shadowy history beyond ever finding certain resolution. But by filtering the information through two criteria, one may possibly gain, if not a crystal clear understanding of the outcome of events, at least the most probable outcome of Bormann's last days in Berlin that can be believed with some confidence. One of these criteria is to look at disassociated stories surrounding these events and see what parallels might verify each other and create a strong enough pattern to validate a given scenario.

The other criteria is that of judiciously weighing the evidence against who presented and/or supports it, in an effort to identify and properly interpret political and other influences that may have motivated and defined the information presented. By combining these two methods of analyzing the information, a relatively coherent and believable - in fact, this author believes, probable though disturbing - picture forms. The official version of Bormann's last days ends with his death at the Lehrter Station Bridge. Or possibly he died not far away at Weidendammer Bridge a few kilometers north of the Reich Chancellery building, under which Adolf Hitler's bunker was hidden. The "eye witness" accounts disagree.

According to reports later provided by occupants of the bunker, in the late hours of 1 May, 1945 the small gaggle of survivors still burrowed in the Führer Bunker after Hitler's suicide separated into a few small groups and, at intervals, sneaked out of the ground and into the frightful night. Artillery and tank shells were falling indiscriminately around them. A few hundred meters away, the sounds of gunfire could be heard as firefights occurred in the darkness, splashing the acrid, smoky air with bursts of red and streaks of light. Each group was responsible to find its own way to safety.

In one of these pathetic patrols reportedly stalked the potbellied, short-legged, bull-necked profile of Martin Bormann, commander of the Nazi party and Hitler's closest confidant. According to the provided scenario, the small group slowly picked its way through the bombshells, bodies and debris littering the streets to a local subway station, where, once again, it slipped under cover of earth. Walking the rails in the dark subway tunnels, the silent group of stragglers made its way north, where it again surfaced to find a means to cross the Spree River. At Weidendammer Bridge the group ran into heavy fighting between German tanks and Russian forces.

One story asserts that Bormann tried to cross the bridge under cover of a German tank navigating the narrow span. The tank was shelled by a bazooka and exploded in a violent burst of flame, killing Bormann [467] according to "eyewitness" Erich Kempka, Hitler's chauffeur and a member of the Führer Bunker escape party. Kempka admitted during his Nuremberg testimony at Bormann's in absentia trial, that he did not approach the body to confirm Bormann had been killed but was certain from the extent of the

violent blast and the manner in which Bormann's body was seen "flying away,"[468] that the Reichsleiter was dead. At least four others of Hitler's trusted insiders reported seeing virtually the same event, but again, none had inspected the body or could declare with certainty it was dead, though all were convinced of it.[469]

Not to worry, a sixth eyewitness later claimed to have observed the events at Weidendammer Bridge, also, and to be able to verify Bormann was killed by the tank blast. Except this witness, the Spaniard Juan Roca-Pinar, who, as an avowed Nazi was fighting near the bridge as part of a small SS unit, later reported that Bormann was not at the side of the tank but riding inside the tank when it was hit by the bazooka shell.[470] Roca-Pinar reported that he was ordered to board the tank and save Bormann, but when he opened the hatch to rescue survivors, he found Bormann dead from the blast. He nonetheless pulled Bormann's corpse from the tank before being forced to abandon it in the street under pressure of enemy fire.

Harry Mengerhausen, a member of Hitler's bodyguard, agreed with Roca-Pinar - Bormann had been inside a tank. But he declared firmly that Bormann was not killed in the blast because he was not in the tank hit, but in an entirely different tank.[471]

The conflicting stories, while containing significant discrepancies, at least agreed, with the exception of Mengerhausen, that Bormann died during a tank explosion on Weidendammer Bridge. But other accounts soon spun these seemingly similar scenarios on their heads. Artur Axmann, the one-armed leader of the Hitler Youth, claimed to have run into Bormann after the Weidendammer Bridge catastrophe and asserted that Bormann was alive, well and completely unharmed.[472] In fact, the two men, in company of others, tried for some time to escape together before later separating to find their own passages to freedom.

Axmann headed west, but, finding the way blocked, subsequently retraced his steps and claims to have again come across Bormann and Dr. Stumpfegger, one of Hitler's physicians, on a railroad trestle at the Lehrter Fairgrounds train station. Bormann and Stumpfegger were lying side by side on the bridge and appeared to be dead; Axmann leaned close to Bormann's body to check for breathing and could discern none. He later

would not swear with certainty, however, that the Reichsleiter was dead. Indeed, their "deaths" were strange. Neither corpse had any indication of being wounded or injured or showed any signs of violence - quite out of line with the reports from Weidendammer bridge, even if Bormann had survived the tank blast - and further mystifying given their deaths having taken place during a heavy battle. They lay calmly next to each other in peaceful repose, their arms resting casually at their sides, as if they had lain, or somebody had lain them, there. Axmann wondered if they had been poisoned or poisoned themselves, but could think of no reason why they should do so, except perhaps that they had lost hope of escape and preferred not to be captured. He left the bodies where he found them and eventually escaped to the Tyrol to command a small band of Hitler Youth determined to keep fighting after the war. American forces captured him there.

And so the semi-official version of Bormann's demise is dubiously documented in a melee of misaligned explanations and seemingly unexplainable inconsistencies. The picture would get further obscured. A rash of post-war Bormann sightings across Europe began to be reported. He was in Sweden, Italy, Spain, Denmark, Germany, Switzerland, Norway, even as far away as Argentina. Many sightings were explained away as misidentifications. Others went unexplained. Stalin was sure he was alive and accused the United States of hiding him.[473]

The evidence for his death was so uncertain that a year after his reported demise, the Nuremberg court convened by the Allies to bring war criminals to justice, tried and convicted Bormann in absentia, thinking from the evidence that it was probable Bormann had survived the war. With so many sightings and so many unanswered questions, people - and government agencies - began the quest to answer the controversy over Bormann's fate. Articles and books flooded the media arguing that Bormann died - and arguing that Bormann lived. Searches began for evidence that proved either case. The sightings continued, but almost no hard evidence was found, though much was claimed.

New theories and additions to the existing stories began to appear, and then even to be reversed; such as that asserted by Simon Wiesenthal. After firmly assuring the world for many years that Bormann had survived - and

strongly hinting that he knew where the fugitive resided [474] - Wiesenthal abruptly reversed himself and asserted that Bormann had committed suicide that night in Berlin when he realized escape was not possible.[475]

Historian Hugh Trevor-Roper, considered by many to be the leading expert on Bormann's fate, reported he was dead, then alive, then dead, then alive again. What caused these sweeping reversals is hard to know, but they illustrate the high state of confusion and uncertainty around Bormann's fate.

Journalist Paul Manning, for his part, reported that Bormann was alive, thanks to the help of Gestapo Chief Heinrich Müller, who had searched for, and found in the Sachsenhausen concentration camp, a man who could serve as a "double" for Bormann. Müller's assistance can be attributed to the fact that he not only may have owed his position to Bormann, but Hitler had ordered Bormann to serve as a go-between for Müller and his direct superior Heinrich Himmler,[476] whom Müller hated. In the months prior to Müller's and Bormann's anticipated escapes - both men felt surrender was a probability that ought to be prepared for - Müller ordered that the double be coached to behave like Bormann and that his dental work be redone to match that of the Reichsleiter's.[477]

While the claim of a double for Bormann initially seems far-fetched, one must remember that it was Müller who found, arranged and prepared the well-known double for Hitler, presumably under Bormann's orders since Bormann held ultimate responsibility for Hitler's safety. The Führer's bodyguard, and even his pilots, were under Bormann's command. Manning explained further that he was provided the initial information about Bormann's double from a highly placed British intelligence source. He received confirmation of the incredible story from one of General Reinhard Gehlen's top aids.[478] Manning subsequently treated the account as accurate and never questioned the story. Indeed, the suggestion that a double actually "stood in" for Martin Bormann during the last known day of his life resolves many anomalies about the events of 1 May, 1945.

General Gehlen was Hitler's chief intelligence officer for Eastern Europe before the German surrender, at which time Gehlen became the Central European expert for the CIA, and eventually head of the secret service in the Federal Republic of Germany.[479] He was, nonetheless, still financed

by American money and thus provided America with East-bloc intelligence. [480] According to Manning, the Bormann post-war story was at one point even further convoluted when Gehlen was forced by the CIA to write in his memoirs that Bormann was a Soviet spy who had died in Russia in 1969. It was one of the agency's many efforts to obfuscate the facts around Bormann's fate, to make any clear exploration impossible. Gehlen later retracted the claim.

Over two decades passed before the first physical evidence suggesting Bormann's fate surfaced. At that time, a report was uncovered that was written shortly after Bormann disappeared. The report declared the Russians had found Bormann's and Dr. Stumpfegger's bodies where Axmann had said they were, on the Lehrter Station Bridge, and the Russians had the corpses buried a few meters away in the Lehrter fairgrounds just days after the city's surrender.[481] They identified the body from a journal of Bormann's that was found in the pocket of the dead man's overcoat.[482]

In the mid-1960s, the German State of Hesse asked that the body be exhumed, but when excessive digging where the body was reportedly buried came up empty, the quest was abandoned.[483] Then in December 1972, just as two separate series of articles by Ladislav Farago and Paul Manning began being published that convincingly argued that Bormann had escaped Berlin,[484] a construction crew "accidentally" unearthed two skulls and some bones 20 yards from the location previously dug up by the official Bormann search party.[485] The skull was examined to see if it was Bormann's but there was a problem: no records of Bormann's dentistry or any other identification marks that could be compared against the skeletal remains were extant. The only record available was a sketch drawn from memory by Bormann's by-then-deceased dentist, Dr. Hugo Blaschke, who drew the sketches during interrogations for the Nuremberg trials.[486] The accuracy of the chart was attested to by Fritz Echtmann, a dental technician who had never actually seen Bormann's teeth, but who had built a dental bridge for a patient he "assumed" was Bormann, based on data given by Dr. Blaschke. Using this data, the pathologists in the case compared the sketch with the unearthed skulls and proclaimed a match.

The riddle of the fate of Martin Bormann had been solved: Martin Bormann had died on Lehrter Bridge in Berlin on 2 May, 1945 as Artur Axmann had asserted; all of the stories regarding his survival, therefore, were false. The version was made semi-official with a press conference, although it was not certified or recognized by a court.[487] A great many journalists thereafter reported that the search was over and the whole world could breathe easier knowing that Hitler's closest confidant was dead and gone. One of the great unanswered secrets of World War Two now was resolved.

Except the skull probably was not Bormann's. In 1953, almost 20 years before the skull was found and eight years after it had been buried, CIA agent James McGovern was operating in Berlin with the assignment of verifying for his agency what had happened to Bormann. He later wrote that in discussions on the matter with the KGB, the CIA had learned that Bormann's body had been identified, by means of the diary found in the pocket of the corpse's overcoat, within days of its burial at Lehrter Station, and Moscow had ordered that the body be disinterred.[488] The corpse was dug up and removed - presumably to conduct forensic testing to see if it was, indeed, Martin Bormann's remains. The remnants were subsequently reburied elsewhere in East Germany.

If the Soviet report that the body was buried somewhere outside of Berlin is true, Bormann's remains could not have been at Lehrter Station when the skull was dug up by workmen. Therefore, the skull found there could not have been Bormann's and the identification of the skull as his, was, at the least, a serious mistake of inefficiency and sloppiness, and at the worst, a fraud. Indeed, Ladislav Farago documents that the skull was actually four skulls, or it at least went through four iterations,[489] each succeeding cranium becoming more and more aligned with the dental sketch of Dr. Blaschke as succeeding complaints came in about obvious inconsistencies. In fact, writes Farago, Professor Reider F. Sognaes, a specialist in oral biology and anatomy who had positively identified Hitler's burnt corpse from its dental records, was so uncertain of the positive Bormann skull identification that he wrote a letter of concern to West German Chancellor Willy Brandt. Sognaes later stated, according to Farago "that he did not believe that the skull found...was the skull of Bormann." [490] Manning confirms this evidence regarding the skull, writing that one of General

Gehlen's aids - one of three independent sources refuting the claims about the skull - confided to him that "the skull is a fraud." [491]

In the latest development regarding the skull, DNA tests were begun in May 1997 and a positive identification of Bormann was announced in May 1998, though no specific results have been made public. [492] Such a finding would be the final word on the matter if the provenance of the skull was impeccable and the disposition of those who controlled the relic was beyond question neutral. But, as has been shown, the inconcontinuities regarding the skull's whereabouts for almost two decades, the reported gross inconsistencies between the dubious dental records and the new-found skull itself, the 50-odd years that have transpired since Bormann's disappearance at age 45 - meaning that Bormann almost certainly had died by 1997 and his handlers may have submitted samples from his actual skull for DNA testing - and the fact he was not even in the grave to begin with, if the Soviet report is true, all combine to cast considerable doubt upon the authenticity of the DNA tests. One last possibility is worth mentioning regarding DNA testing of the skull. If the Soviet report is wrong and the skull discovered was actually that of the person buried in Lehrter Station with Dr. Stumpfegger, it probably was that of Bormann's double. Müller, under Bormann's direction as chief of Hitler's security, had successfully found a double for Hitler in one of the Führer's distant cousins.

Might he have done the same for Bormann when developing Bormann's double? James O'Donnell, author of *The Bunker*, noticed on a personal visit to Bormann's hometown that a large percentage of the people there looked like Bormann, and were possible relations. [493] If the body was that of a Bormann relative, DNA tests quite possibly would have shown a match with the DNA provided by another relative, without the skull being that of Martin Bormann. In all cases, the identity of the skull found at Lehrter Station is far from above suspicion. The author believes, when considered against the preponderance of other evidence and the provenance of the skull itself, the skull most likely is not that of Martin Bormann.

So what really happened to Martin Bormann? Among the many scenarios detailing Bormann's escape, although it was never given weight in the West, was an accusation Joseph Stalin made stating Soviet intelligence had

reported Bormann was flown out of Berlin in a small airplane on the dawn of 30 April.[494] Irrefutable proof exists that a small plane left the Tiergarten at dawn on April 30, flying in the direction of Hamburg. Three men and a woman are known to have been on board. It has also been established that a large submarine left Hamburg before the arrival of the British forces. Mysterious persons were on board the submarine....[495]

In addition, according to author William Stevenson, "Stalin told Harry Hopkins in Moscow that he believed Bormann escaped. Now he went further and said it was Bormann who got away in the fleeing U-boat. More than that Stalin refused to disclose." [496] Stalin later reiterated his belief, claiming that Bormann was being harbored by the United States government in his escape and continued freedom. The Allies, led by the United States, refused to give this story credence and ignored Stalin's demands for an explanation, and, in fact, began claiming in defense that the Soviets held Bormann. But Stalin insisted until his death that his was the correct account of Martin Bormann's fate.

Why would Stalin make such a claim? What did he stand to lose if it was true? What value could he gain from such an assertion if he knew it was false? And if it were true, why would the United States discount it out of hand? These seem to be the obvious questions concerning the matter. But equally important, though much less glaring, are the small questions; the questions about the innocuous details that make up the fabric of Stalin's very specific story. If Stalin was not telling the truth, why would he include such unique and seemingly contestable details as the fact the airplane carried four people when the only two airplanes capable of using the ad hoc runway - the Fieseler-Storch and the Arado - were designed to carry only two.

Why did he include a woman in the escape party when it would be almost inconceivable that a woman would be on such a desperate and dangerous mission? And why would Stalin assert the escape was continued from Hamburg on a "large" U-boat? The Allies were fairly certain that all but two of Germany's largest U-boats had been sunk during the war, and one of those was in the Pacific. The chances seemed slim that such an escape as Stalin described was ever made.

A series of totally independent accounts, however, corroborate very well Stalin's unlikely tale. First, a makeshift runway is now well-known to have been operating in the Tiergarten to service the Führer Bunker during the last days of the war,[497] although at the time of Stalin's comment that knowledge was not so wide spread. Albert Speer, Hitler's Munitions Minister, described flying into the stop-gap landing strip on the occasion of Hitler's fifty-sixth birthday - celebrated a week before Bormann's mysterious escape - when the Russians were still at the outskirts of Berlin. [498] According to Speer, as an airplane prepared to land or take off, a detachment of SS soldiers would light a series of lanterns placed along both sides of the wide avenue that stretched from the Brandenburg Gate to the Reich Chancellery. The airplane would use the strip and then the lanterns quickly would be extinguished again.

Second, the great German aviatrix, Hanna Reitsch, a contemporary of Amelia Earhart's and close friend of Adolf Hitler, had flown into Berlin only a few days previous to the mysterious escape flight.[499] Reitsch had in the past received personally from Hitler the Iron Cross (the only woman to do so) both first and second class,[500] for bravely test piloting the flying capabilities of a V-1 rocket, which had been modified with a cockpit. Now, she had piloted a Fieseler Storch airplane to bring Luftwaffe General Robert Ritter von Greim to Berlin so Hitler could make him the overall commander of the Luftwaffe in place of the recently dethroned Göring. During the flight into Berlin, von Greim was injured by enemy anti-aircraft shrapnel.

After landing, Reitsch and von Greim were harbored in the bunker for a few days while von Greim lay in bed recuperating before making the exit flight. Reitsch recorded in her memoirs that she, with a heavily bandaged General von Greim by her side, flew out of Berlin from the Tiergarten - at dawn on 30 April according to her 5 December, 1945 press interview [501] - exactly the same time Stalin reported the mysterious escape flight took off. Then she recorded in her memoirs an odd event. Instead of flying to Austria, their intended destination, Reitsch writes how they flew 400 dangerous miles, partly over enemy territory, with the badly injured and very important General von Greim, to Plön, Admiral Dönitz's headquarters.[502] She gives the reason for this detour as the desire to wish the Admiral a fond farewell.

Such a detour for such a superfluous reason seems remarkably improbable given the desperate state of affairs on the military front and the injuries to General von Greim. Would not a radio message have done? What if all the remaining German leaders decided to travel to each other in order to wish one another farewell? There seems to be no indication that Dönitz and von Greim had any special relationship beyond two professionals doing their jobs. The reason for the detour seems highly suspect.

To be sure, other reasons were later given for the strange flight deviation, but, despite their outward veracity, when subjected to even minimal scrutiny they seem almost as hollow as the reason Reitsch describes. The chief assertion is that von Greim was flown to Plön after Hitler had concluded Himmler was a traitor who had begun separate surrender negotiations with the West. Supposedly von Greim was sent to arrest Himmler.[503] But the Führer Bunker was in radio contact with Dönitz many times a day and could have had Dönitz make the arrest. The wounded von Greim, with his one-woman retinue, was in far less able condition to arrest Himmler than the healthy Dönitz with his considerable cortège. Dönitz was a strict and efficient military professional with a strong reputation for carrying out his command. Indeed, at the end of the war Hitler entrusted him with the post-war leadership of the entire nation.

If Dönitz was not capable of fulfilling the order, to send the injured von Greim to enforce the order over Dönitz's head and in his own headquarters, surrounded by the Admiral's full retinue and in the face of Himmler's substantial SS bodyguard, seems unlikely. And if they had, in fact, flown to Dönitz for this purpose, why would not Reitsch have stated so in her memoirs, written many years later? The order for Himmler's arrest was never a secret - not even at the time it was issued, much less decades later when she wrote her book. And in the end, when von Greim met with Himmler, he only told the Reichsführer-SS that Hitler had denounced him, [504] further suggesting that von Greim was not really sent to Plön to arrest the SS chief. In short, there seems to be no viable reason why Reitsch and von Greim had flown alone to Plön.

There is a reason for the huge flight deviation, however, if they were not alone. The traditional history documents well Bormann's intense efforts to

make his way to Admiral Dönitz during this time.[505] Bormann had told his family they would be escaping on a U-boat to Japan;[506] and some of Bormann's closest associates, including Gauleiter Erich Koch and others, expected to escape by U-boat as well, with Bormann's help.[507] So strong was Bormann's effort to reach Dönitz that by 3:30 the morning of 30 April, Bormann had Hitler issue an order to his pilot, Hans Baur, to fly Bormann to Dönitz.[508]

To think that Bormann and Baur were aware that Hanna Reitsch was preparing to fly out of Berlin within hours after this order was issued - an order that Bormann successfully had manipulated from Hitler and that provided possibly his last chance for escape - but that Bormann failed to capitalize on the opportunity, seems exceptionally unlikely given Bormann's pragmatism, power and legendary drive to survive. It seems especially so considering that Reitsch did, in fact, pilot the airplane to Dönitz's headquarters, although there seems to be no other viable reason for her to have gone there - as noted above - and there were many reason for her not to go to Dönitz.

Possible validation of this phantom flight is provided in another flight supposedly made from the Tiergarten, which was reported to have occurred late on the night of 29 April, 1945. The provenance of this account is suspect, but if it is true, it certainly adds to the argument that Bormann and Heinrich Müller may have escaped together by airplane. In 1996, author Gregory Douglas published the first of three volumes titled *The 1949 Interrogation of Gestapo Chief Heinrich Müller*. The books are claimed to have been written from Müller's own records as provided to Douglas by the Müller family, and Douglas has done a considerable job of proving the information in the documents is true, even if the documents themselves may be suspect. Details of such a limited nature that few people would know them are included in the book, and they have been reviewed by Robert Wolf, who worked for many years as an archivist specializing in World War Two for the United States National Archives and Records Administration.

In a telephone interview with the author, Mr. Wolf, though obviously finding his comments personally disheartening, if not distasteful, admitted that all of the details he could find objective reference to that were claimed

in Douglas's account proved to be true. The records are purported to be a post-war interrogation of Heinrich Müller by the OSS, forerunner of the CIA, when the agency was considering hiring Müller and the substantial spy apparatus that the former Gestapo Chief operated throughout the Soviet Union and elsewhere.

During the alleged interrogation, Müller described his escape from Berlin on the night of 29 April, just hours before Reitsch claims to have escaped in a Fieseler Storch airplane,[509] in the same type of aircraft Reitsch claims to have flown. In his account, Müller is flown out alone, with a male pilot the only other person in the airplane. Instead of flying to Plön, Müller contended the Fieseler Storch was flown south to the Austrian/Swiss border, the approximate location Hanna Reitsch describes as her and General von Greim's final destination following their detour to Dönitz's headquarters.

There are obvious inconsistencies in this tale compared to Reitsch's - besides the fact that it may not even be true. But the discrepancies may be easily explained if it is true. First, if Bormann and Müller did escape secretly in company of Reitsch and von Greim, it would seem that as joint conspirators they all would have agreed to protect their secret. For that reason, Reitsch would not have identified Bormann or Müller as having been on the flight she piloted to Dönitz. Under the same agreement, Müller would not have identified any of his flying mates either, therefore he reported he flew alone; and he may even have reported a different take-off time to further separate himself from the other escapees. Or possibly he considered the pre-dawn hours of 30 April as part of the night of 29 April.

Second, if the flight to Dönitz was ever tied to U-234 - considering the inferences that could later be made from that connection - Müller again would not have wanted to reveal it. No one knew as well as Müller how compartmentalized governments, and intelligence agencies in particular, are when it comes to maintaining state secrets. He could not assume that the OSS officer interrogating him was aware of a possible Bormann/U-234 connection with the United States; that information would have been available within the agency on a "need to know" basis only. Certainly Müller and Bormann both would have agreed in the original escape

negotiations not to discuss a Bormann/U-234 arrangement with anyone, and to keep it as far from being discovered as possible. Since there was no need for his interrogators to know of the U-234 deal, in fact, there were good personal and United States national security reasons for them not to know of it, Müller simply excluded any reference to it from the interrogation. Those in the know within the CIA would have expected him to do so, and he knew it.

Third, if Müller escaped with Bormann onboard U-234, he could not have been flown to the Swiss border of Austria on the airplane, as he reported in the interrogation version of his escape. True, but if he escaped on U-234, he, like Bormann, would not have wanted anyone to know how he made his escape, for the same reasons as listed above. If Müller told the interrogator he had been flown to Hamburg, he would have had to tell him how he escaped from there. Rather than tell them he escaped aboard a U-boat from Hamburg, which threatened to lead right back to U-234 and further questions, it made good sense to adopt the remainder of Reitsch's and von Greim's flight as his own cover story. He therefore told his interviewer that he flew to the Austrian/Swiss border and escaped across the Alps.

Such adaptation into cover stories of real events falls perfectly in line with intelligence operatives' practice of keeping deceptive scenarios as close to the truth as possible, deviating only when necessary to protect that which is being covered. In this way, if the Fieseler Storch bearing Reitsch and von Greim had been spotted and recorded as having landed in the area Müller asserted, the sighting would validate Müller's story. Using specified portions of reality in cover stories was also considerably easier than Müller's alternative, which was to create a totally fictitious story that would hold up under investigative scrutiny, and as a result would have been more difficult to do believably.

One last set of observations may be made concerning Müller's reputed flight. While it was possible to fly in and out of the Tiergarten, it was not an easy thing to do and it was quite dangerous - as illustrated by General von Greim's injuries a few days earlier. Such flights were even more risky during the last two days of April when the Reich Chancellery was almost entirely surrounded by Soviet forces. The more flights that flew in and out

of the makeshift airstrip, the more likely they would draw attention of Russian air support, who would shoot the slow and defenseless hedgehoppers down. In addition, the Russians were more likely to locate the airstrip itself, and, as a result, identify the general area of Hitler's bunker. Given these considerations, it seems unlikely several flights per night were permitted. To suggest that two, and possibly three, flights may have lifted off from the airstrip on the night of 29-30 April - Müller's flight, Reitsch's flight, and the one Stalin claims - while Hitler was still inside the bunker, seems risky if not out of the question.

The chances of multiple flights being allowed to depart seem even less likely when considering Reitsch's and Müller's flights were supposedly both destined for approximately the same location on the Austro-Swiss border. Surely Hitler's headquarters staff would have consolidated flights when possible, rather than let several take off and increase the risk of exposure. The trouble involved in lighting, dousing and relighting the airstrip multiple times and in keeping available a number of the rare airplanes capable of using the short landing strip also would have discouraged such activity.

Even without the questionable Müller account, using only Reitsch's memoirs, Stalin's story of the mysterious flight appears to have a strong basis in fact. Bormann and Müller were reported by some to have escaped together.[510] If Bormann and Müller were on the Fieseler Storch with Hanna Reitsch and General von Greim, Stalin's description of four people flying out of Berlin together, one of them Bormann and one a woman, would have been accurate. In addition, the description of the small party escaping in a large U-boat identifies itself particularly well with U-234, which, it will be remembered, had received at least one - and possibly two - radio transmissions from Hitler's bunker; and which led General Kessler to anticipate an important passenger from Berlin.

In addition, as will be reviewed in detail in the next chapter, Captain Fehler appears to have taken U-234 on a convoluted voyage, with each successive twist and turn intended to hide the U-boat's movements and activities. The description of Bormann's getaway boat as a large U-boat links the escape to U-234 even closer, not just because U-234 was by comparison extremely

large, but even more so because it appears to have been the only boat of its mammoth size left in Europe.

U-234 was originally built as a mine laying, Type XB U-boat, commissioned March 3, 1944. These double-hulled, triple-sized U-boats were designed to seed strategically chosen bodies of water with high-explosive mines. The Allies became so adept at detecting and eradicating these mines before any harm was caused, however, that the Type XB quickly became obsolete.[511] There was but a handful of Type XBs ever built: U-116 through U-119, U-219, U-220, U-233 and the mysterious U-234.[512] When the Type XB proved not to have the impact for which it was designed, the boats were refitted as supply vessels for the 'wolfpack' boats sinking Allied convoys on the battlefield in the Atlantic.

Compared to the wolfpack boats, however, Type XB U-boats were huge, more than 1600 tons displacement when surfaced, while the ubiquitous Type VII U-boats that constituted 75 percent [513] of Germany's submersible fleet, were 500 tons - less than one-third the size of a Type XB. The other popular U-boat, the Type IX, was larger than the Type VII at anywhere from 740 to 1100 tons. But the Type XB was 50 percent larger than even these more common front boats that, combined with the smaller Type VII, constituted almost the entire remaining U-boat fleet. Russian observers of U-boats were probably accustomed to both the Type VII and the Type IX and probably would not have differentiated them by size as out of the ordinary.

Type XBs, however, were almost unknown. As noted, there had been only eight of them made. U-116 through U-220, with the exception of U-219, were all sunk in the year between the first of October 1942 and the end of October 1943.[514] U-219 had fortuitously avoided this fate by being stationed in the Pacific immediately upon commissioning, having left Bordeaux, France on 23 August, 1944 for Djakarta, Indonesia, where it arrived on 11 December, 1944.[515] In the South Pacific it was far away from Europe and Bormann and the fierce Atlantic fighting when the war in Europe ended. When Germany surrendered, U-219, still in the Pacific, was turned over to the Japanese Imperial Navy to continue the war under the flag of the Rising Sun.[516] U-233 had been sunk before commissioning,

leaving U-234 as the only remaining "large" Type XB U-boat available in Europe at the time of Bormann's alleged escape.

The Type XIV U-boat was the only other U-boat larger than the popular Type IX and comparable in size to the Type XB. Like the XB, few of these boats were made - only ten - which were all built and operational by the end of 1942.[517] They were designed and used as a refueling boat for the wolfpack vessels, and, as a result, like the XB, had a very high mortality rate. The sinking of a single Type XIV shortened the combat patrols of approximately twelve fighting U-boats, so Allied anti-submarine efforts concentrated on what the German U-boaters affectionately called their 'Milk Cows.'

The process of refueling was dangerous, requiring the Type XIV fuel supply boat and its recipient lie still in the water for hours on end during the fuel transfer process. During this time, both boats were vulnerable to attack, which happened often, at which the panicked crews would quickly detach the umbilicals and both boats would execute emergency dives. The smaller fighting boat, with its more compact size, greater maneuverability, and with its more disciplined, battle-seasoned crew, would invariably be the first to maneuver out of harm's way, leaving the clumsy behemoth Type XIV at the mercy of the enemy. It was an easy target.

Of the 39,000 German sailors who fought on U-boats during the war, 28,962 were killed and an additional 4,000 captured. A total of over five out of every six U-boaters, therefore, was lost in the war. Remarkably, despite these numbers, Germany's U-boat service was the only one of its military services that had more volunteers than it could use throughout the entire duration of the war.[518] Type XIV U-boats had an abnormally high mortality rate compared to even these chilling statistics, making it apparent that survival of a Type XIV U-boat for even a few months was miraculous. In fact, none of the Type XIV U-boats survived to the end of the war, all ten had suffered the fate of the majority of Type XBs by the end of 1943.[519] The only other large U-boat built was the Walther U-boat, which was designed and under construction, but not operational, before the end of the war.

U-234, therefore, was the only 'large' U-boat left in the Reich's fleet that would most closely fit Joseph Stalin's escape boat description. And, as already mentioned, it is known that U-234 had received at least one radio transmission from the Führer Bunker, and quite possibly more; and that Bormann, apparently, had some connection or even control over the boat. Apparently, the "wild pig routing for a potato" had dug up the morsel that would save his life.

So what does the composite story of Bormann's escape look like, taking into account all of the acknowledged tales of Bormann's last days in Berlin and the additional evidence since uncovered? Even though Dönitz's order to U-234 countermanding the directive from Berlin to stay put, and then ordering the U-boat to leave as soon as possible, was received on the 14th, U-234, as noted elsewhere, did not actually set sail until two days later, on the 16th - the same day the barrage of Berlin began. Perhaps Bormann, from Hitler's headquarters, had set the final attack on Berlin as the automatic signal that Fehler stealthily set to sea, from where he would await further orders. On the morning of 22 April, Bormann radiogrammed Helmut von Hummel, his top aid, who was now working in Obersalzberg: "agree to proposed overseas transfer south." The Soviet Bormann expert Lev Besymenski later interpreted this message to refer to a prescheduled escape to South America.[520]

In Berlin, the Russians were daily tightening their noose around the beleaguered city and the core of Hitler's remaining leaders huddled in the bunker under the Reich Chancellery. During the final three days of April, virtually all historians agree, Bormann struggled mightily to escape the strangle-hold of Berlin and make his way to Admiral Dönitz. At the same time, he held conference with Heinrich Müller as they tried to execute their escape plan and finalize the details of fleeing Berlin.[521]

On the night of 28-29 April, when Hitler ordered Hanna Reitsch to fly out of Berlin with new Luftwaffe commander von Greim, the opportunity Bormann and Müller were looking for had arrived. Bormann quickly succeeded in getting Hitler to order that he should be flown out to Dönitz, as well.[522] In fact, according to author James P. O'Donnell, Bormann was simply substituted for Hitler in an escape plan Hitler's pilot, Hans Baur, had

prepared.[523] O'Donnell suggested, however, that the original plan, which was never completed, was for Baur to fly Hitler - before Bormann was substituted - out of Berlin, not for Hanna Reitsch to fly him. Reitsch's and von Greim's impending departure appears therefore to have been a fortuitous opportunity to implement Baur's plan for Bormann and Müller to escape with Baur being the pilot.

Two more considerations support the scenario that Hanna Reitsch flew Bormann out of Berlin: First, Baur was extremely loyal to Hitler and he was a staunch Nazi [524] to his dying day, and he reported directly to Bormann. [525] Given Bormann's mission to preserve Nazism and the Führer's legacy, all three facts would indicate that Baur did everything in his power to fulfill the order to get Bormann to Dönitz. Second, despite the order, Baur did not actually fly Hitler or Bormann out of Berlin, he escaped on foot with the others.

What else but the Reitsch flight could have been done to implement Baur's escape plan? Hitler had already married Eva Braun and composed his last will and testament, demonstrating that he expected Nazism to carry on despite his absence and its dismal condition [526] - probably as a result of Bormann convincing him the Flight Capital Program would still work if he, Bormann, could escape to administer it. This was the moment for which Bormann had anxiously waited. But up until then, the Führer had not given Bormann final permission to forever leave his service. Bormann, loyal to the end, would not dream of deserting Hitler if he knew his master might yet need him.

At 3:30 a.m. 30 April, the Führer had concluded his baneful business on earth and all but ended his life. He would put a bullet through his head 12 hours later, but not before he had ordered Baur, in no uncertain terms, to make sure Bormann got to Dönitz to deliver his last will and political testament, which Bormann would hand carry and personally deliver.[527] Jochen von Lang, who inaccurately wrote that Bormann would later sign the message informing Dönitz that Hitler was dead, puts the time at about noon, hours after Bormann would have escaped in the plane. But Dollinger puts the time simply "in the morning" of 30 April, the inference being that it

was shortly after Hitler's 3:30 a.m. signing of his will and political testament.

Whatever the case, Bormann's uncanny influence over Hitler had worked one final time. "Bormann has been given several orders which he must take to Dönitz in person....It is most important that Bormann gets to Dönitz," Hitler told Baur. At dawn of the same day, 30 April, Martin Bormann and Heinrich Müller most likely departed with Hanna Reitsch and General von Greim toward Admiral Dönitz's headquarters in Plön.

Bormann's double remained to unwittingly play his awful role in a final fraud performance. General Baur never made any attempt to fly Bormann to Dönitz, although the traditional history suggests the topic was discussed by Goebbels and Baur on 1 May, long after Bormann apparently was gone and a flight out of Berlin was no longer possible.[528] Given the convergence of so many disparate elements - Bormann and Müller having worked so long and painstakingly together to develop his double; their escape plan preparations on the night of 28-29 April, which coincides with the timing of Hitler's order that Bormann travel to Dönitz; the report that Müller had flown out to freedom in that same time frame; Reitsch's admission that she had flown a small plane to Dönitz the morning of 30 April; and, again, Stalin's insistence that Bormann escaped in a small plane at exactly the same time - the weight of the evidence for this scenario seems far too compelling to be overshadowed by any of the historically entrenched but seriously conflicting stories.

The escape described above would have given Bormann and Müller a day or two head start from the others in the bunker and the opportunity to leave behind a viable alibi that would resolve their fates for the outside world and eliminate post-war searches. Bormann's and Müller's detailed hard work appeared to have paid off. Indeed, five staunch Führer bunker Nazis all testified that they saw Bormann killed on Weidendammer Bridge, an assertion now considered a patent lie. And other would-be observers provided slightly different versions of the same story.

The cover story, designed to end later searches, would insist that Bormann and Müller escaped Hitler's headquarters with the others in the bunker the night of the breakout. Upon exiting the bomb shelter, the scenario went,

Müller and Bormann were separated and Bormann made his way to a location - possibly Weidendammer Bridge had already been selected, possibly it was left to the vagaries of the fluid condition of the battle for that to be decided. The story would describe how, once at Weidendammer Bridge, Martin Bormann was killed by a blast to a tank he was using to cross the bridge.

Both Paul Manning and James O'Donnell site a story of a tank having been specifically pre-arranged to be at Weidendammer bridge at the fateful moment to complete the illusion.[529] Manning believed the story, O'Donnell did not. To further validate the death, Bormann's double would be taken to the bridge and killed via cyanide or some other form of poisoning to later be found with Bormann's diary placed in the unfortunate corpse's pocket [530] to identify the body as Bormann's and conclude the illusion. The body would validate the "eye witness" reports of the Reich Minister's demise: Bormann's death would be assured and he would fade into the shadows of history.

Once the cover story was completed and disseminated to Hitler's remaining top aids for post-surrender circulation, Bormann and Müller flew with Reitsch and von Greim to Hamburg, where U-234 would soon pick them up just as Stalin insisted had happened. The only exception to Stalin's story is his assertion that the woman and all three men boarded the U-boat. Possibly his contacts reported so because Hanna Reitsch and von Greim had flown to safety with Bormann and Müller and the observers assumed they had thus continued the escape together, when later events revealed they had not. Or, quite possibly considering Hanna Reitsch's adventurous, inquisitive and "tomboyish" nature, she boarded the U-boat temporarily with General von Greim for a quick look around and to wish her companion flyers farewell before continuing her journey to the south. Perhaps the spies never saw her return to the U-boat deck and then dockside.

Whatever the case, upon disembarking Hamburg, the U-boat took Bormann and Müller to a prearranged rendezvous point in the Bay of Biscay, where the two men boarded another vessel and were ferried to the north coast of Spain. There, Bormann and Müller quietly completed their European business affairs behind-the-scenes and under the protection of Spain and, by

secret extension, the United States' watchful eye. The plan was a good one, detailed and well thought out considering all the possibilities. But the unpredictability of battle, the serendipitous nature of fate, and the persistence of people who refused to let justice go undone, undid it. First, the integrity of the scenario was not kept after the key bearers of the cover story were captured.

Erich Kempka, Hitler's chauffeur; Hans Baur, Hitler's pilot; Heinz Linge, Hitler's valet; Johann Rattenhuber, chief of Hitler's detective bodyguard; and Otto Günsche, Hitler's SS adjutant, were the survivors of Berlin who were closest to Hitler and Bormann during the final days in the bunker. They all asserted that they saw Bormann die in the tank explosion on Weidendammer Bridge. As the keepers of the cover story, this was what they were expected to do. But others swore to different events, both on the bridge and off. As noted above, Roca-Pinar and Harry Mengerhausen testified to very significant variances in the Weidendammer Bridge episode. These versions were possibly the result of their later captivity with the official keepers of the escape scenario - from whom they apparently heard the story - and a desire to be known, possibly falsely, as a participant in the historical event, but having modified the story to their own ends.

The later identification by Axmann of the dead Bormann on the Lehrter Station Bridge further undid Bormann's and Müller's caper. There is little reason to believe Axmann was lying, other than the bizarre details, when he told his odd story of calm corpses lying uninjured in the midst of the great battle. He probably had, in fact, checked the breathing of the poisoned body of Bormann's double lying peacefully next to that of Dr. Stumpfegger, thinking it was the actual Bormann. Presumably, Stumpfegger was in on the escape scenario and it was his task to poison Bormann's double - as he had poisoned Goebbels' children - to conclude the desired illusion.[531]

Stumpfegger may have decided to "do in" the counterfeit Bormann on Lehrter Station Bridge, instead of according to the cover story on Weidendammer Bridge, because the Russians already controlled the latter overpass by the time the duo reached their planned destination. The Doctor possibly then calculated the Lehrter trestle was as close as he was going to get to fulfilling the details of the cover story and so committed the

execution there. Once the deadly deed was done, apparently seeing he was on his own and devoid of hope of escaping the tightening Soviet ring, Stumpfegger concluded his grotesque killing spree by taking his own despicable life as well; following Hitler, Goebbels, General Burgdorf and others, in suicide. Thus Axmann found Bormann - or actually Bormann's double - and Dr. Stumpfegger lying dead, but otherwise unharmed, peacefully reclined side by side on Lehrter Station Bridge.

Bormann was supposed to have been escaping Berlin expressly to deliver Hitler's will and political testament, which he was personally carrying, to Admiral Dönitz. The body found was identified as Bormann's when the Reichleiter's personal journal was found in its overcoat pocket. Hitler's will and political testament are never mentioned as having been found on the body, however, although at least one account indicates they were sewn into the lining of his SS uniform.[532] Perhaps they were overlooked, but it seems doubtful given the fact that if the diary was found, almost certainly everything else about the corpse, including its garments, would have been carefully scrutinized for further proof it was Bormann's body. As already noted, the body was later exhumed according to the Soviet report to the CIA, probably to perform forensics tests to confirm or disprove it was actually Bormann's remains.

The second series of scenario-crippling conclusions came when additional facts related to the escape began to arise. For instance, although the disappearance of Heinrich Müller was lost on many in the confusion surrounding the escape attempt, a grave reportedly containing his remains was later identified in the Kreuzberg garrison cemetery in Berlin.[533] Supposedly, he had been killed in street fighting during the escape. Since then flowers had been lovingly placed regularly at his headstone for 18 years - presumably by members. Later reports were received, however, suggesting that possibly the Gestapo Chief's remains were not in the coffin under the headstone bearing his name and at which flowers were regularly being placed. By order of the West Berlin District Attorney's office, the remains were exhumed and forensics tests performed. The findings showed that bits and pieces of three men shared the grizzly grave, but none of them was Heinrich Müller.[534]

The depth and breadth of some of the escape plans was beginning to become clear. Had Bormann and Müller made plans so complete, so airtight, that they included detailed, carefully prepared camouflaging tactics to conceal the escapes, and carried out macabre charades for decades after to ensure their safety?

The answer, viewed against the conflicting testimonies and cryptic anomalies linked to the supposed demise of Martin Bormann, caused those who suspected Bormann might not have died in Berlin to look even closer at the evidence. Especially interested were those investigators, such as Paul Manning,[535] Ladislav Farago [536] and William Stevenson,[537] who believed Bormann and Müller carefully worked out their escapes together. Manning quotes an unnamed Bormann expert as saying "Bormann planned this flight with extreme care and part of the grand design was a scheme to lead future forensic and dental specialists astray." [538] The journalist later cited Müller's skill and considerable professionalism at such endeavors, [539] which was evidenced by the phony grave he left behind. Even von Lang, who ultimately insists Bormann died in Berlin, intimates Bormann and Müller made plans to escape together.[540] If Müller and Bormann went to such pains to hide the escape, the investigators started asking, what had they done to prepare for it? As the investigators found and started pulling on loose threads, the carefully constructed tapestry began to unravel.

Many will assert that it was impossible for Bormann to have escaped Berlin because the testimony of witnesses who were with him and the long litany of radio transmissions he authored from the Führer Bunker proves he was intact in Hitler's headquarters until just hours before the escape attempt. A careful, chronological review of the messages and of his actions, however, reveals some interesting irregularities that, if nothing else, may be telling in their incongruities.

Up until the night of 29 April, the historical record seems fairly unassailable except for one small, perplexing detail. The record shows Bormann was paying particular attention to keeping Admiral Dönitz informed of events in Berlin. Bormann's constant contact with Dönitz is now accepted widely, 50

years later, and is unquestioned, but in its contemporary political context, such activity on Bormann's behalf is bewildering.

Updating Dönitz on the military situation in Berlin was undoubtedly needed, but it would have been a military matter and should have been carried out by Hitler's military chain of command, which was still intact in the bunker, not through a civilian office, which was Bormann's domain. Hitler's generals were, in fact, in constant contact with one another through military channels during the course of the battle, and this should have included Dönitz, as well. Why Bormann was in contact with Dönitz seems to be unknown. Hitler had not yet announced his "unexpected" appointment of Dönitz as his successor, so it was too early for Bormann to initiate government business with the Admiral. Despite all Bormann's machinations in the past, through which he, at times, had influenced military matters, Hitler had never allowed Bormann to participate directly in military affairs; and Bormann seldom showed more than passing interest in doing so. Despite these conditions, Bormann, for some reason, was now in regular contact with Dönitz, constantly updating him on the state of the battle.

On 29 April, the Reichsleiter wired Dönitz, "Situation very serious.... Those ordered to rescue the Führer are keeping silent.... Disloyalty seems to gain the upper hand everywhere.... The Reich Chancellery a rubble heap.... We are staying on." [541] Alone such an update, though abnormal, would not have - and has not - been considered remarkable. But considered in light of later developments, such communications may appear to have been part of a narrower context, rather than a simple update on the state of the battle.

Earlier that night, the last gasps of Hitler's Thousand Year Reich had begun in earnest. The Führer married, concluded all his worldly affairs, and began his last day on earth awaiting the moment to ignominiously end his life. Before midnight on the 28th or in the early morning hours of the 29th, he had asked his old friend Hanna Reitsch to fly General von Greim out of Berlin. [542]

While it is fairly certain Hitler gave the order for the flight on the night of the 28th, historical accounts vary as to when the order was actually carried out. Some, such as General Koller in his account of events, claim the flight took place on the night of the 28th. [543] Others claim the flight occurred on

the 29th; and still others, such as Reitsch herself according to a news account to which Farago refers, claim she and von Greim flew out at dawn on the morning of the 30th.[544] These disparate dates may be explainable as skewed pieces of an overall cover story or simply as the results of aging on memories or the confusion of war, but certainly, if taken at face value, Reitsch's account should be given precedence.

At about 1 a.m. the morning of the 29th, Hitler married Eva Braun in a short civil ceremony witnessed by Bormann and Goebbels and attended by a few others.[545] He then sequestered himself with a secretary and dictated his last will and testament and political manifesto, which he completed and signed about 4 a.m. A few moments later, at 4:17 a.m.,[546] Bormann sent his message to Dönitz informing the Admiral of the dire state of the military situation in Berlin and of the Reich Chancellery being "a rubble heap," but that they were determined to "stay on." He mentioned nothing of Hitler's marriage or preparations for his death, although Hitler had already made his absolute decision to die in Berlin, as attested by granting Eva Braun her last wish of marriage to him and preparing his will.

Despite this decision, apparently later the same day, Bormann sent another message to Dönitz challenging him to prove his loyalty by immediately relieving the Führer.[547] But Dönitz had already sent two divisions [548] and a contingent of sea cadet trainees [549] - most of whom were slaughtered - to Berlin. Knowing that Hitler vehemently had refused days earlier to escape to Bavaria, and that he had now determined and started the preparations to die in Berlin,[550] it seems remarkable that Bormann encouraged Dönitz to invest more men on some sort of rescue attempt of the Führer, undefined as that may be. The message, however, seems to continue a series of deceptions and stonewall techniques Bormann was playing with Dönitz for some mysterious end. The next 24 hours in the bunker must have felt hopelessly macabre for the subterranean survivors, with the final hours interminably passing and the incessant rumbling of heavy guns and artillery constantly jarring the earth overhead. Hitler's generals sent communiques far and wide, continually trying to save the desperate, if not hopeless, situation. But Soviet forces were too strong and held a stranglehold on the city.

At 3:15 a.m. 30 April, the day after Hitler's final preparations to die, Martin Bormann sent Admiral Dönitz another message.[551] He described briefly how the Wehrmacht's rescuers were "stubbing their toes," inferring that a rescue by them was doubtful, and then added a post script of sorts: "Addition from Berlin. Attempts will probably be made to jam radio transmissions. Do not let it upset you. Future communication will be forwarded to Plön." The message appears to be instructions to expect the possibility of communications from the Führer Bunker by way of different transmission centers than from the bunker itself, or possibly by a different manner of communication altogether.

At dawn a half-hour to an hour later,[552] depending on which account one chooses to believe,[553] Hanna Reitsch and General Robert Ritter von Greim flew out of the Tiergarten in a small aircraft. Despite the plane's short take-off capacity and the fact several previous flights had already proven the landing strip to be plenty long for the small hedge-hopper, the airplane barely cleared the statuary atop the Brandenburg Gate.[554] The reason given for the dangerous near miss was that the aircraft had taken off with the wind.

Perhaps so. But perhaps the aircraft, which was designed to carry only two people, was carrying twice the weight it was designed to, in the form of two additional passengers. Such a scenario would explain the overlong takeoff and would certainly add credence to Stalin's determined assertion that three men and a woman took off in a small airplane at the same time and place as the flight noted above.

Around 3:30 p.m., Adolf and Eva Hitler killed themselves. Two hours later, Bormann informed Dönitz that the Admiral had been chosen the Führer's successor, but, mystifyingly, he did not tell the Admiral that Hitler was dead.[555] Dönitz asked Bormann for verification from witnesses, apparently suspecting Bormann might be playing him for a dupe.[556] Bormann made no effort to provide the requested witnesses - probably because he was no longer in the bunker to receive and fulfill the request; nor had he been for two or three hours. In addition, Bormann would have feared that witnesses would tell Dönitz the Führer was dead, which would have ruined Bormann's plan.

Fourteen hours after that, at 7:40 a.m. on 1 May, Bormann again contacted Dönitz, this time to tell him that Hitler's testament was in force, but once again he did not reveal directly that the Führer was dead.[557] The Reichsleiter then recommended to Dönitz that he not publish this information.

Historians for over fifty years have tried to understand in the context of the traditional history these strange, outwardly unnecessary and seemingly meaningless, deceptions. In the context of the traditional history, Bormann's messages seem to make little sense, though many writers have strained to read meaning into them. But against the background of the earlier reported radio signals to U-234 from the Führer Bunker, and Dönitz's struggle to maintain chain-of-command of the U-boat, Bormann's strange convolutions begin to be clear. The Reichsleiter, as only he could, appears to be playing a game of cat-and-mouse with the Admiral. The evidence throughout appears to suggest Dönitz was undecided as to helping Bormann escape, or possibly had decided not to help him at all.

There is strong evidence Dönitz was concerned Bormann was manipulating him, such as Dönitz's request for witnesses to his being Hitler's successor. Indeed, later Dönitz issued an arrest order for Bormann should he make it to Plön.[558] As a result, apparently Bormann felt it necessary to manipulate the U-boat Service commander, first by earlier convincing him to commit to help Hitler's escape - even though he, Bormann, would be the one escaping. Presumably, Dönitz's thinking he was helping Hitler escape would have convinced him to release U-234 from its staging area near Ireland, to slide into Hamburg to pick up its fugitive passengers.

And later, once U-234 was on its way back to Germany, Bormann appears to have kept Dönitz "on the string" by hanging the bait of being post-war leader of Germany in front of him, which the Admiral was guaranteed when Hitler named him his successor. Probably, Bormann had convinced the Führer to select Dönitz as his successor for his strong leadership and clean, non-political, but avowed nationalist loyalties, which would make him a good choice as Germany's leader after the capitulation. That the Allies would not allow such an arrangement had yet to be proven and was no matter to Bormann. The real reason Bormann convinced Hitler to appoint

Dönitz was to give the Reichsleiter a hand he could play to get Dönitz's cooperation with his escape - Bormann needed that U-boat. With Dönitz feeling he was on the verge of leading the nation, Bormann knew the Admiral would be careful not to displease the Führer. But once Dönitz knew Hitler was dead, the Admiral's command would be law and Bormann would be one of the first of Hitler's paladins he would seek to bring down, and Bormann knew it. Until Dönitz became aware of Hitler's death, however, Bormann would have the upper hand. So Bormann kept the death a secret. He flew out of Berlin, not to Plön straight away, but to Hamburg, where he, instead of Hitler, waited for U-234 to land.

At 5 p.m. on 30 April, Bormann probably was safely hidden away not in the besieged bunker in Berlin but in Hamburg, awaiting the arrival of U-234, when he buttressed his frail position with Dönitz by sending the message informing the Admiral that he had been chosen Hitler's successor. Dönitz would not have been overly concerned even if he could identify the message as coming from Hamburg, or any other point for that matter, since Bormann, in anticipation of his escape requirements, had warned the Admiral to expect communications to come from almost anywhere because of possible signal jamming. In addition, Dönitz would not necessarily have assumed Hitler must be dead in order to succeed him as Führer; if Hitler escaped Europe and went into hiding the testament would be in force and Dönitz would be in charge. To this end Dönitz was working.

Finally, probably some time on 3 or 4 May, the giant U-boat Stalin reported had served as Bormann's escape vehicle, slipped into Hamburg. But on 1 May, Bormann's final piece was already in place for the escape and Dönitz could not have stopped Bormann's breakout. Bormann probably sent his last message to Dönitz while safely ensconced in Hamburg, while Dönitz thought he was in Berlin, but undoubtedly Bormann was still careful not to let the Admiral know of the Führer's demise. Possibly he did not know of Hitler's death himself since he had not been in the bunker since hours before the suicide. In any case, Bormann appears to have tried to make Dönitz think he was in the Admiral's control: "Testament in force. Will join you as soon as possible. Advise delay publication until then."

With that sketchy information, Dönitz would be careful not to overstep his bounds and would wait patiently for an explanation when Bormann arrived - and then he would arrest him. But Bormann never showed. The suggestion he was coming to Dönitz was a ruse, not just to neutralize Dönitz while Bormann waited for the U-boat at Hamburg, but it would work as well to camouflage his escape when investigators later pursued his whereabouts. While Dönitz later was told Bormann had been killed in the street fighting, actually Bormann, presumably accompanied by Müller, set out to sea on the U-boat, which was by then out of Dönitz's hands. What U-boat captain could resist having the Führer's top lieutenant on board personally giving him orders, especially if it was part of a previous plan? Indeed, there must have been a pre-agreed upon U-boat escape plan intact long before Bormann ever entered the boat, or why would Bormann's children and several of his political cronies all claim Bormann had made arrangements for them to escape by U-boat. And why would the giant U-boat have been brought into Hamburg to pick up the missing Reichsleiter in the first place?

Champions of the traditional history will assert there are serious flaws in this chronology. They will ask, how could Bormann be in Hamburg waiting for the U-boat while he is known to have been participating in Hitler's death and burial and the unsuccessful surrender negotiations with the Soviets during the early morning hours of 1 May? Or they will question Bormann's alleged signing, with Goebbels, of the message later informing Dönitz that Hitler was dead, sent sometime between 2:15 and 3:15 p.m. May 1, long after Bormann is supposed to have been in Hamburg waiting for the U-boat.

The serious flaws in these accounts are actually in the traditional history. For despite assertions that Bormann oversaw the Soviet surrender negotiations, General Krebs, who was sent to the Soviets to parlay, states that he could not agree to the Soviet demand for unconditional surrender because he did not have Goebbels' authorization to do so.[559] He never mentioned Bormann in this context, even though Bormann signed the authorization to initiate negotiations [560] - he probably pre-signed all necessary documents that could be anticipated for the surrender before leaving the bunker - and he would almost certainly have been expected to provide leadership during negotiations had he still been present. James

O'Donnell, author of *The Bunker*, agrees that Krebs was negotiating only under Goebbels' direction.[561]

And although the traditional history insists Goebbels forced Bormann to sign the document notifying Admiral Dönitz of Hitler's death [562] that afternoon, a photograph of the actual document as shown in Dollinger's *The Decline and Fall of Nazi Germany and Imperial Japan* shows that Goebbels alone signed the communique to Dönitz - Bormann's signature is not on it. [563] This is an important and very telling discrepancy, since up until then all communications with Dönitz, for some mysterious reason, had apparently gone through Bormann. The telephone exchange of the bunker was also under Bormann's direct command up until 30 April, after which Goebbels took control of the system.[564] Apparently, from the evidence, the Reichsleiter seems to have vanished. Bormann still had a presence in the bunker, though - in the form of his Gestapo-supplied double, who would soon be sacrificed on Lehrter Bridge. And undoubtedly those who did not

know any better continued to account for the Reichsleiter in this inconsequential counterfeit. But those who knew Bormann was gone gave the double no consideration. That is why Krebs and Goebbels failed to take him into account in their dealings with the Soviets.[565] And thus we read eyewitness reports that Bormann fecklessly was participating in these events and nothing significant was ever done under Bormann's hand again. The presence of Bormann's double acting in his place explains the rash of eyewitness accounts describing how, after Hitler's death, Bormann's demeanor seemed to have changed from overbearing to timid.[566] Many have explained this as Bormann's survival reaction to the loss of his protector, Hitler, who was now dead. But such a behavior swing seems out of character with the persona of the man, as illustrated by his radiogram sent after Hitler's death in which Bormann, while informing Dönitz he is Hitler's successor, is still forceful and confident in his position. The aberrant behavior of the "Bormann" observed in the bunker, however, could be expected of a common man thrown into such bizarre circumstances as playing the role of a very important international leader during the catastrophic fall of the empire that leader served.

Admittedly, the scenario above assumes much in certain areas of the account. There is no direct proof that Bormann and Dönitz ever actually communicated specifically about U-234 or that any of the transmissions from Bormann to Dönitz originated from any other location than the Führer Bunker. Nor is there direct documentary evidence that U-234 was part of an escape plan or that Bormann was ever aboard her. But the preponderance of evidence - especially when viewed through the two filters of comparing disparate stories to find specific similarities and patterns, and of weighing evidence against the possible vested interests of its sources - certainly tends to validate this scenario above any other, even and including the traditional history. And the explanations for the far less substantial conflicts and incongruities of this scenario are much less incredible than those of the history presently accepted.

Stalin's report of the flight from Berlin and Bormann's boarding a U-boat in Hamburg, the Hanna Reitsch flight and Bormann's determination to get to Dönitz and Hitler's order that Bormann be taken to Dönitz, all happening virtually at the same time, combine to present the most credible, compelling story for Bormann's escape. It is hard to believe that Hanna Reitsch departed to fly to Dönitz at the same time Bormann was trying to get to the Admiral, by order of Hitler, and yet that Bormann was not on that airplane. There appears to have been little reason for Stalin to lie about such an episode, for what could he have hoped to gain from it? If he had made it up, the Western Allies would have paid little attention to it, so such a concoction would be of little value. If it were true, however, especially considering the implications to the Soviet Union of the cargo U-234 carried, if Stalin knew about it, then Stalin would have every reason to be upset and insist the mystery be resolved. He could be expected to never let the subject die, which he did not during his lifetime.[567] But certainly to protect its advantage, the United States would deny and minimize any such accusation - which it did and has done ever since, including throwing the same complaint in the Soviet's face of harboring Bormann, - in order to belittle, confuse and defuse in the public's mind Stalin's claim.

If Stalin was telling the truth about the flight from Berlin, as the details he included tend to demonstrate he was, then why not about the large U-boat, as well? British Field Marshall Bernard Montgomery was reported in early

September 1945 to have said British Intelligence received a report of Bormann in Hamburg the night of 1 May,[568] apparently verifying Stalin's assertion that Bormann had been flown to Hamburg, or else how would he have gotten there so fast.

That Bormann flew to Hamburg and escaped in a submarine is further supported by an episode Ladislav Farago described when he asked British Intelligence about a report that Bormann escaped in a U-boat. He was told by one of Britain's highest ranking intelligence officers that they had investigated the report immediately after the war, but that the inquiry was more interested in the U-boat he escaped in than in the missing Reichsleiter himself.[569]

Two points are of interest in this response. The first is that there was no denial that Bormann had escaped by U-boat. On the contrary, the connotation is that the report was true and there seemed to be some specific knowledge about the escape and the escape vehicle, which would tend to validate the U-boat escape story. The contact noted that the investigation was later dropped; which is quite possibly a telling event, as well. The investigation would have been dropped once it was discovered the U-boat wound up in American hands, and probably not until then or until the whereabouts of the wayward U-boat and Bormann had been determined.

The second point is that almost all German U-boats had surrendered by this time, and, with the war over, held little more value than as surplus submarines for the Allied navies. Most were sunk as target practice shortly after the war. On the other hand, the Allies knew by then that Bormann controlled all of Hitler's vast wealth as well as the Nazi Party's massive funds and properties and several colossal government accounts.

In addition, he had untold knowledge about the workings of the Third Reich, its intelligence services and international business dealings that were worth billions of dollars. These were the spoils of war, and under the guise of reparations, the Allies were intent on claiming them, if they could identify them. For that, it would be most helpful to have Bormann. What Bormann controlled, therefore, was far more valuable than a single submarine. Certainly Hitler's missing lieutenant would take top billing over any single U-boat and its cargo, which British intelligence seemed so

interested in - with the possible exception of the world-molding critical cargo of U-234.

The mysterious activities of U-234 - which will be reviewed in the next chapter - support the idea that Bormann was picked up by the U-boat in Hamburg. Indeed, William Stevenson noted a direct link between Bormann and U-234 when he described how Bormann "had at his fingertips all the details required for...moving special cargoes like the dismantled rockets shipped by U-boat to Japan"[570] as well as the "scientists" who developed Germany's atomic bomb.[571]

Chapter Thirteen - Escape and Surrender

12 May 1945

From: U234 (Fehler)

To: GZZ 10

Position 50.00 N - 30.00 W. Surfaced, course 260, speed 8.

D/F [Direction Finder Fix - author's note] 51.00 N - 27.00 W

0623Z [6:23 a.m. - authors note] [572]

Surrender transmission sent from U-234 at 6:23 a.m., 12 May, 1945

12 May 1945

From: U-234 (Fehler)

To: Comsubs Op

Surfaced at 0800B/12/5/45

Position 50.00 N - 34.00 W

Course 260. Speed 8.

D/F Position 50.00 N. - 34.00 W

2340Z [11:40 p.m. - authors note] [573]

A second transmission from U-234 sent over 17 hours later reporting, by coordinates, an unchanged position since the morning transmission, while reporting a velocity of 8 knots in both transmissions. Despite the reported unchanged position, direction finder fixes show U-234 was travelling westward twice as fast as the velocity reported: in the first transmission U-234 actually was well east of its reported position, and it actually was well west of its reported position in the second transmission.

There are more mysteries related to U-234 than its enigmatic passengers and cargo. The whereabouts of U-234 from April 16 until May 12, 1945, almost a month, are, seemingly, a conundrum - a puzzle whose answer leads to another riddle, which leads again to another puzzle, and so on, until you arrive back at the original question - what happened? Review of the U-

boat's logbook itself reveals a perplexing collection of contradictions when compared against intercepted radio transmissions, other accounts of the voyage, and even other information within the same logbook, suggesting that at least part of its record is falsified.

In fact, even a cursory glance at what are purported to be various pages of the war log reveals astounding inconsistencies in the physical nature of the book and the handwriting therein, leading to questions and doubt regarding its very provenance. In addition, the few apparently clear facts provided by the war log reveal a bizarre and unexpected travel routine for a fleeing U-boat. And the actions taken by the U-boat commander in the final days prior to its surrender are duplicitous and deceitful - and apparently in coordination with United States Navy activities.

In short, the evidence suggests that U-234 may not to have left Norway under the conditions it was reported to, may not have cruised the course across the Atlantic it was claimed to have traveled, and definitely did not surrender when, where and to whom it was ordered to capitulate. Instead, in almost every case, its commander, Captain Lieutenant Johann Heinrich Fehler, appears to have been intent on achieving a different, unknown end.

But even before the U-boat cast off from the pier, its presence was generating considerable interest - both in Germany and across the Atlantic in the United States. A captured German ULTRA radio encoder/decoder had allowed the Allies to break the German codes and thus receive and decode U-boat transmissions describing U-234's secret mission and other aspects of its operations. U-234's Chief Radio Operator Wolfgang Hirschfeld's two accounts of these events corroborate and add enlightening detail to this data.

According to these sources, as noted in a previous chapter, U-234 had received important radio transmissions that seemed to indicate a struggle over chain-of-command of the U-boat was taking place between Hitler's headquarters and U-boat Grand Admiral Karl Dönitz. Probably on 12 April, U-234 received a special order that Hirschfeld later wrote had originated from Hitler's bunker headquarters.

"One day we received the following transmission, 'U-234 is not to leave yet. Wait for orders. - The Führer Headquarters'" [574]

The signal intelligence itself seems to substantiate at least the basics of Hirschfeld's story, although there are differences in the details between his accounts and the intercepted radio transmissions. For instance, in an English version of Hirschfeld's memoirs, the order told Fehler to "'only sail on the orders of the highest level' - Führer HQ." [575] An English translation of the German version of Hirschfeld's account quotes the order as, "'U-234 is not to leave yet. Wait for orders' - Führer HQ." [576] An actual intercepted dispatch similar to, and therefore probably connected to the one Hirschfeld was referencing, commanded U-234 to remain at Kristiansand until "especially ordered." [577]

The intercepted radio transmission put the date of receipt of this order as 12 April, but Hirschfeld's recollection put the day he saw the order as "about 14 April." And although Hirschfeld in both of his accounts identified the dispatch he saw as originating from the Führer Bunker, the intercepted version of the transmission is identified as coming from the German Commander of Submarine Operations. Here is our first conundrum; was there truly a mysterious messenger in the Führer Bunker, and, if so, what was his intent in ordering the U-boat to stay?

Standard command center procedure would suggest that, had U-234 received a specially coded message from Hitler's headquarters, the U-boat command communication center would automatically relay the transmission to U-234 on behalf of the Führer Bunker. Although the Allies' captured ULTRA decoder could decipher the U-boat command code, apparently it was not equipped for the special leadership frequencies or codes of the Führer Bunker. The original message from the bunker would not have been intercepted.

Presumably, U-234 was not equipped with the special equipment to receive such a message either. So the U-boat command communications operators needed to rephrase the wording to downplay Hitler's headquarters connection, in order not to reveal to prying ears the high priority of the message or the Bunker's involvement in it; but to insure, nonetheless, that U-234 received appropriate operating orders.

Following this procedure would also conserve proper chain of command. And it would also explain why Hirschfeld read the Führer Bunker message a day or two later in the communications center. Possibly he recognized the relayed message for what it was and went to the communications center to read the original. Hirschfeld writes that he made a special daily visit to the flotilla communications center while in Kristiansand to pick up messages for the U-boat.[578] Such a practice seems odd, since U-234 appears to have been capable of receiving all standard U-boat transmissions - vis-a-vis the present relayed dispatch.

The daily visits therefore suggest Hirschfeld, and Fehler by extension, were expecting the special message. Whatever the case, as a result of one of these visits, Hirschfeld writes that he knew the transmission originated from the Führer Bunker because he was given a copy of the order and that it was identified as having come from Hitler's headquarters. An interesting set of comparisons about this message can be made between Hirschfeld's first version of the incident in his book *Feindfahrten*, written in German, and his second account written with Geoffrey Brooks, *Hirschfeld, The Story of a U-boat NCO - 1940-1946*, written in English several years later. The details in Hirschfeld's earlier version of the episode described how Fehler showed the dispatch to his passenger, General Kessler, who surmised that a mystery guest was coming from Berlin.[579]

The later version of this episode makes only a veiled, oblique, passing mention of this discussion.[580] From my contacts I learned that, after the first book, Fehler and others "in the know" about the mysterious Führer Bunker dispatch, vigorously censured Hirschfeld for having revealed anything about it. Ensuing claims were made that Hirschfeld had, in fact, falsely elaborated his report of this episode. Such after-the-fact editing seems suspect, however, given the proven veracity of many other elements of Hirschfeld's accounts of events - which will be pointed out as our narrative continues - and the chain of anomalies and enigmas otherwise left in U-234's wake.

At any rate, in Hirschfeld's early version, Kessler surmised that Berlin was sending another passenger to travel in the U-boat and that he guessed the unexpected traveler would be Hermann Göring, whom, to Fehler's horror,

he called "The Fat One." Kessler went on to explain that Göring's presence in the U-boat was unacceptable to him because he and Göring had had a falling out and so he was not prepared to spend several months confined in small U-boat quarters with the Luftwaffe Reich Marshall. Despite the exclusion of this event from Hirschfeld's second account, to a large degree, revealing this little-known detail qualifies Hirschfeld's authenticity as a witness of this event, and by extension, the veracity of his original claim that the order for U-234 not to leave Kristiansand came from the Führer Bunker. During Kessler's interrogation following U-234's surrender, Kessler, indeed, revealed the details of an otherwise little-known falling out he had had with Göring.[581]

Shortly, according to Hirschfeld's first account, a second dispatch came through the flotilla communications center. Tellingly, Hirschfeld's later version of events once again excludes any mention of this transmission. The communiqué, also sent on a leadership-dedicated frequency, though benign on the face of it, was even more mysterious than the first. The dispatch read, "To lead radio chief Hirschfeld on U-234, for your last trip, much luck and healthy return home. Your Bubi." When called before the Flotilla Commander to account for the enigmatic message, Hirschfeld explained that the transmission had been sent from Bernhard Geissmann, the head radioman at 10th Flotilla in Lorient, France. He then writes obliquely that this answer could not be followed up on because Lorient had been captured. The obvious intent of his response thus was to protect the identity of "Bubi."

"Bubi" may, in fact, have been Bernhard Geissmann, but that seems unlikely since it is almost certain the Allied forces that captured Lorient would not casually allow an enemy prisoner to transmit a personal message on a captured enemy's special frequency transmitter. Who, then, was Bubi, and what was the meaning of the message? If, indeed, it was not from Bernhard Geissmann, then it would seem the transmission was a coded message from an unknown sender, presumably including a prearranged signal designed as part of a predetermined plan.

Perhaps the phrase "healthy return home" indicated the plan now was in place for U-234 to return to Germany upon the proper signal to pick up the

mystery guest - we will probably never know. Within a few hours of this dispatch, according to Hirschfeld [582] - but probably the next day according to a second radio intercept received 13 April [583] - Commander Fehler received another order. This message came from Grand Admiral Karl Dönitz, commander of the U-boat fleet, and told Fehler not to accept orders from anyone but the Admiral himself, and then commanded Fehler to depart as quickly as he could make the appropriate preparations.[584]

Upon receiving the order, according to Hirschfeld, Fehler openly acknowledged the clash over chain-of-command of the U-boat by joking about Dönitz's willingness to take on the top brass; but really, Fehler was in a tight spot. How could he expect to execute conflicting orders from both the supreme commander of the U-boat navy and from the Führer's headquarters itself? Should he fail to do either, the personal consequences could be catastrophic. Certainly, at the very least, an order directly from the Führer's headquarters to Fehler had to have a profound influence personally on U-234's commander. He must have felt great pressure as he was ground between his two powerful leaders. Fehler would need to work magic to squeeze out of this, his very first pickle as the U-boat's captain - and he had not even left friendly shores!

Yet he seems to have worked some effective sleight of hand, for radio transmission intercepts record that U-234 apparently seems to have fulfilled both orders! The massive U-boat is actually documented by these intercepted radio transmissions to have left port twice. Here is the second of our circular puzzles. The intercepts record that U-234 had "put out of Kristiansand south" on 16 April, according to one transmission.[585] But another transmission two days later, on 18 April, reported U-234 was on its way "out of port at present." [586] How could the U-boat have left port on the 16th and still be leaving Kristiansand two days later on the 18th?

Possibly Fehler had changed plans and returned. According to U-234's "official" log, however, on 18 April the U-boat was already approximately 200 miles away, heading north in the opposite direction reported on the 16th, and was then in the latitudes around Bergen, Norway.[587] Apparently, the U-boat had not been called back if the log is correct - but then, we shall see that the log, itself, is suspect. For there is another

"official" log; a log that ends abruptly on 18 April, the very day of the second report of U-234 exiting port. We shall return to this convoluted chronicle momentarily.

The strange contradiction of the two messages regarding U-234 leaving port twice may be answered once again by radioman Hirschfeld, in another of his cryptic, abstruse passages that appears to shine light on these mysterious movements. In both of his accounts of the journey he writes that, once U-234 was clear of Kristiansand, U-boat Commander North Captain Hans Rosing sailed to and boarded the U-boat from a "*communications launch*" [italics added].

This event had always perplexed me because, although Hirschfeld infers it occurred off Kristiansand, I knew Rosing was headquartered in Bergen. True, he may have been visiting Kristiansand on official business, the U-boat base was certainly within his jurisdiction, but why would he wait for U-234 to leave Kristiansand and then chase it down in a small craft rather than address its crew at the pier, as was the common practice?

After reviewing Hirschfeld's words and the intercepted "second exit from port" message, combined with the evidence of the strangely truncated logbook on the one hand, and the position of U-234 near Bergen, as posted in that logbook on the other hand, it seemed to me that U-234 secretly may have been detoured to Bergen for an unknown purpose. If this was the case, and it was supposed to be kept secret, it would explain the logbook having been abruptly concluded on that day rather than record the fact of the Bergen visit. A "mock" or replacement logbook would then have to have been created to hide the clandestine detour - possibly right away, possibly at a later date - thus the "official" logbook.

Hirschfeld's description of the meeting with Rosing strongly supports the idea that U-234 visited Bergen, since that was Rosing's headquarters. And, as mentioned, the puzzle revealed by the intercepted radio transmission reporting that U-234 left port a second time seems to support that conclusion as well. U-234 was, indeed, at the right longitude, and only a few miles offshore at Bergen on the 18th. To make a surreptitious stop there to take on Rosing would have been quick and easy. The tersely ended logbook supports the likelihood of the secret sidetrack on that date. As does

the fact that according to Herbert Werner, author of the U-boat classic book *Iron Coffins*, and himself a U-boat commander serving in Norway at the time, Rosing was, in fact, in Bergen during 16 through 19 April, 1945.[588] Rosing himself asserts that he does not remember his whereabouts at the time,[589] although the event seems so singular that one would expect the key details to remain in one's mind.

Whether at Kristiansand or Bergen, almost certainly Rosing and Fehler did not risk their one-of-a-kind U-boat, priceless cargo and important passengers and crew sitting openly in the dangerous waters off port - where British submarines and anti-submarine craft regularly prowled to interdict U-boat activities - just so Rosing could give three cheers for captain and crew. One can only speculate what the purpose of the detour might have been. The few small clues Hirschfeld provided, and knowing that Fehler was caught in the middle of a perilous game of cat-and-mouse between Dönitz and the Führer's Headquarters, surely must provide context. There must have been an important operational reason for this secret side trip. Probably that reason is revealed in Hirschfeld's description of the boat that brought Rosing to U-234's side - he described it as a *communications launch* [italics added by author].

Apparently, certain communications were of such high importance or of such a secret nature that they were not entrusted over the regular U-boat service air waves, even in encrypted form. At least, such seems to be the case here. Possibly Rosing was hand delivering one of the special-frequency dispatches from the Führer Bunker that U-234 was not equipped to receive; so this detour was U-234's "at sea" version of Hirschfeld's visits to the Kristiansand communications center on land. To ensure secured receipt of an important secret message, a special boat seems to have been employed with a well-trusted messenger, U-boat North Commander Rosing, whom one would suspect under the circumstances personally delivered to Fehler a mysterious missive.

We may speculate that such a message was most likely operational orders for U-234, possibly resolving the struggle between Dönitz and Berlin over who would command the U-boat, or perhaps giving instructions on how to deploy until time to pick up its secret guest from Berlin. Or the

communications launch itself may have been sent to transfer to U-234 the equipment required to receive the special-frequency messages from Berlin. This is conjecture, but certainly not outside the realm of possibility. Hirschfeld makes it clear in his writings that the radio components of the boat were modular and easily changed in and out of the console;^[dxc] and that the boat was equipped with the very latest instrumentation and every possible technical advantage.

Rosing's final words to captain and crew may be telling about what he knew of the mission of U-234; he said, "Comrades, when you return from this mission, we will have our final victory." Given the desperate situation for Germany - it would fall within two weeks - the crew rightfully, though quietly, questioned his sanity. But given the purpose of U-234's mission, if there was hope of victory at all for the Third Reich, it was in the success of this made-over minelayer - and, tellingly, Rosing knew it.

While our first conundrum is still somewhat of a mystery - to be answered later - it would seem our second conundrum, U-234's leaving port twice, is solved. But what of the strangely truncated logbook - which leads to our third conundrum: why does one logbook end abruptly and its supposed sequel not jive with the rest of the evidence regarding U-234's movements?

When I first requested a copy of the captured war log of U-234 from United States archives at the beginning of my research, I was told by an archivist that the logbook had been thrown into the sea by U-234's captain. He asserted that Fehler got rid of the journal prior to the U-boat's surrender to avoid compromising the document. But U-234 carried Nazi Germany's greatest secret weapons, I reasoned, including the V-2 rocket, the Messerschmidt 262 jet fighter, all of the plans and documents required to manufacture them, atomic bomb components and presumably plans to build those weapons, as well. If Fehler did not know the important details about his freight, which seems improbable despite his later claims, he at least knew the basic reason and deep importance of his cargo and passengers, and yet he surrendered them all intact.

I reasoned that this was a significant incongruity in the report that Captain Fehler had surrendered the valuable Nazi secrets and personnel, apparently without a second thought, but had refused to surrender his comparatively

trivial logbook. The journal, presumably, simply reported the course he cruised prior to surrender. What could be damning about that if the story was as simple as suggested? No, the logbook itself apparently held important secrets that Fehler did not want revealed, and thus Fehler had indeed consigned it to the deep and we would never know U-234's whereabouts between 16 April and 12 May, 1945. Or, possibly, the book was intact but held damning evidence, and thus was being kept in some separate archive, out of circulation from prying eyes.

When, during a research session in Washington in 1997, I was told the Library of Congress held a collection of captured German documents, I raced over to the venerable old building in hopes of locating the missing log. I was informed the captured documents did indeed contain a journal from U-234, but that all the documents had been microfilmed and returned to Germany to be archived there. Satisfied with the opportunity to read the microfilm rolls, I began searching for traces of a logbook from U-234. Roll 18 held what I was looking for - almost. A logbook identified as that of U-234 began on 24 March, 1945, the day before the U-boat's departure from Kiel to Kristiansand. As noted previously, it ended abruptly on, of all days, 18 April, 1945 - the same day of U-234's mysterious "second exit" from port. I use the word "abruptly" because, while the U-boat's activities are detailed through the days and weeks leading up to and through 17 April, including leaving port on 16 April - corroborating the first intercepted message of it leaving port on that day - the heading "18 April" is written in longhand halfway down the page, but the rest of the page is blank.

There are no entries in the half-page underneath the date. No course coordinates, no weather reports, no times, no bearings. In other words, the remaining half-page is blank. There is no information for 18 April, the same day that intercepted transmissions mysteriously identified U-234 as leaving port for the second time in three days. And there are no entries for the 19th or 20th - the log does not pick up again until 12 May, the day U-234 first transmitted its intent to surrender to Allied forces.[590]

Baffled by the inconsistencies and the gargantuan gap in the record, I approached a Library of Congress archivist, who informed me the original logbook had been sent to the Bundesarchiv in Germany; he suggested

perhaps I could get the full record from there. I faxed the Bundesarchiv, requesting the log. In return I was mailed a photocopy of record RM 98/676, with the words "U-Boot U234" written in blue fountain pen ink on the front cover. Nowhere throughout the entire document is U-234 identified as an organic, photocopied part of the journal as the U-boat of record.

The copy of the log begins on 19 April, per my request (I now wish I had requested it from 24 March, when U-234 left Kiel. I wonder if the record would have started then or abruptly on 18 April?) and ends on 12 May, the day Fehler surrendered his vessel to the USS Sutton.[591] But there are two problems with this logbook; the positions, speeds, bearings and coordinates given for the last day before surrender show a course materially different than that actually sailed by Fehler, as revealed by Allied radio direction-finding coordinates, and as substantiated by Hirschfeld. And the Bundesarchiv logbook is neither the same printed layout nor are its entries written in the same handwriting as that of the logbook microfilmed by the Library of Congress, of which it is supposed to be part and parcel.

Since both the intercepted transmissions and the Bundesarchiv logbook are primary evidence - authoritative, contemporaneous and organic to the events under study - these conflicts are significant. The inconsistencies in the evidence suggest gross negligence or willful deceit in completing one or both of the records. Radio intercepts are and were dispassionately dated intelligence for the purpose of tracking important events, and there seems to be no reason why anyone would manipulate this particular record. On the other hand, that there are major inconsistencies in the physical and informative aspects of the Bundesarchiv logbook casts considerable doubt on its veracity, in the opinion of this researcher. The data recorded in the logbook in many cases does not fit either the official account or unofficial recollections given of U-234's journey; and on another level, in fact, the entries appear to try to hide the U-boat's actual movements.

There is a long list of details within the logbook that conflict with other data in the log or with other substantive evidence regarding the movements of U-234, or that is incongruous with the U-boat's stated mission and the rest of its activities. Even some of the evidence external to the logbook conflicts

with U-234's mission and logbook, thus all the information taken together suggests an organized effort to camouflage U-234's movements.

On 21 April, for example, as U-234 was supposedly fleeing to Japan on its specially dedicated mission, and outwardly at least, was under orders not to participate in any other operational activities,[592] intercepted radio transmissions show the U-boat received an order to "guard Ireland." [593] Certainly such an operational assignment was incongruous with the extraordinary nature of U-234's mission, cargo and passengers. And the U-boat was not built for combat patrol, having only two torpedo tubes, both at the stern, and just seven torpedoes.[594] That U-234 undertook patrol operations, as the dispatch seems to suggest, is therefore highly unlikely. In the context of these considerations, the dispatch to "guard Ireland" seems more likely to have been a signal telling Fehler to proceed with his mission by circumnavigating Ireland, or otherwise positioning himself no further away from the European mainland than the Celtic island.

During 20 April, the day just prior to this order, according to the coordinates given in the logbook, U-234 mysteriously had broken off from its pre-planned route [595] to Japan. The route was supposed to take U-234 on a bearing almost due north through the strait between the Faroe Islands and Iceland; instead U-234 had been turned roughly due west. And according to its daily noon-time coordinates postings, the U-boat, specially equipped to sail submerged at eight to ten miles-per-hour, and almost 20 miles-per-hour surfaced,[596] was hardly moving, traveling at between one and two-and-a-half miles per hour - just enough speed to maintain steerage. The average man walks at between two and two and-a-half miles-per-hour.

According to the logbook, this is the speed the U-boat traveled throughout the journey until its last few days at sea. While Fehler later suggested this slow speed was the most economic velocity for such a long mission,[597] intercepted transmissions indicate U-234 may have planned to refuel in Indonesia,[598] even though it appears to have had enough fuel to make Japan sailing under relatively normal conditions.[599] Considered against this information and the nature of the mission, the special capabilities of the U-boat, and reports that it later sailed submerged for six days apparently unnecessarily and very inefficiently, the slow velocity recorded in the log

seems rather to suggest Fehler was marking time in an effort to remain close to home.

When the message later came ordering Fehler to "guard Ireland," the U-boat was turned north again toward its originally planned course, but still at the same slow speed. The receipt of the order to guard Ireland, and Fehler's suspiciously slow speed and westerly direction just before receiving the dispatch - suggesting he intended to stay in the North Sea rather than heading out to the Atlantic - seem to support the possibility Captain Fehler was expecting an order that would require him to remain relatively close at hand. Although the apparent holding pattern was broken off with the dispatch to guard Ireland, the order to stay close to Ireland and thus keep U-234 within three-days proximity to Germany, tends to substantiate a higher-level plan was being followed in support of some mysterious objective. While obeying the order and adjusting his course appropriately, Fehler continued to sail at a snail's pace, apparently still anticipating a change of plans that, when received, would require him to be in the region.

According to the Bundesarchiv logbook, U-234 now turned north at two miles-per-hour on its way back to its pre-planned course, but for the next two days the U-boat covered less distance than otherwise would have been expected, even at its two-miles-an-hour speed. Indeed, the U-boat's coordinates show a position change of barely ten miles during the 24 hours between noon on the 22nd and mid-day of the 23rd. This delay appears to have a different cause than the intentional stalling activities Fehler had practiced until then, however, and it further validates Hirschfeld's accounts. [600] According to the log, late on the evening of the 22nd, U-234 was abruptly turned northeast. But after less than an hour's sailing its course was reversed again to the southwest for over three hours before coming about once more to a corrected course that intersected the original planned journey.

This strange episode in the log occurs almost due west of Trondheim, Norway, which is the longitude Hirschfeld gives for a near miss with a freighter that almost churned under U-234 in the steamer's propellers as the U-boat was making way at snorkel depth. Fehler was forced to "emergency dive" to avoid a collision and certainly must have followed the exercise

with a standard drill to ensure he had evaded detection. The record of apparent evasive maneuvers tends therefore, once again, to validate as accurate the general authenticity of Hirschfeld's account of events.

During its journey, U-234 swung from one direction to another a few times, as recorded throughout the log, but these appear to be standard check-up maneuvers and possible course corrections. There are other sizeable and apparently unexplainable discrepancies, however, between where the U-boat was at a given time as recorded in the logbook according to celestial or electronic navigation coordinates, and where it was plotted to be according to reckoning by distance and direction. Records of both techniques were kept in the log. Small disparities between these two forms of navigation are to be expected as they are used to crosscheck one another. But the errors recorded in the case of U-234 occur too often and are too large - off by as much as 200 percent or more in distance and almost 90 degrees in direction in a single day's travel - and occur as often as one-third of the U-boat's days at sea. In short, while certain critical events seem to be accounted for in the log, like the near-miss with the steamer and an electrical fire that is recorded in Hirschfeld's account, as well, the general plotting in the logbook appears to be patently and inexplicably sloppy and inaccurate. The gross disparities in the record suggest someone was completing the logbook very quickly and without caring where U-234 actually was when the entries were being made. In fact, completion of the log seems to have been done with little concern for ensuring the two forms of navigation would validate one another at all! And as the journey progressed, the errors became greater. At the same time, other unexpected but seemingly important changes occurred.

For example, in the opening hours of 1 May - about the same time Martin Bormann is reported to have been preparing to make a rendezvous with a giant U-boat in Hamburg - U-234 again broke from its planned journey and turned due east, back toward the North Sea, from a southwesterly course. The logbook records that this diversion lasted only an hour. Review of the events leading up to and after this strange course change, however, may be revealing.

Beginning in the early morning hours of 30 April, about the time Bormann was concluding a series of deceptive dispatches to Dönitz to arrange the

final details of his escape from Berlin, a series of changes in the way U-234 was controlled occur in the log. First, and perhaps most telling, although the Bundesarchiv log and Hirschfeld both agree that after the near miss with the steamer U-234 had run surfaced almost every night until beyond the Iceland/Faroe Island Narrows,[601] the logbook records Fehler now chose to run submerged in the Atlantic. Having already run perhaps the most dangerous part of the journey surfaced at night - the North Sea and the narrows were heavily patrolled for anti-submarine activity - the logbook shows that Fehler now chose to go forward slowly and inefficiently beneath the water's surface.

According to the logbook, U-234 sailed continuously without surfacing from the early hours of 30 April until late 5 May - the crucial time span between Bormann's disappearance from Berlin starting on the 30th of April, to Dönitz's capitulation on the 5th of May. If true, running for almost six full days either fully submerged or at snorkel depth was a rare event for any U-boat. Importantly, Hirschfeld's account - proven extremely accurate thus far - conflicts with the logbook, saying U-234 continued to proceed "submerged by day and surfaced at night under the protection of our radar." [602]

Even Fehler admitted the logbook is only partially true when he later wrote that on the first two nights after passing through the strait his efforts to surface were thwarted by unidentified aircraft on his radar.[603] He affirms, however, that on the third night the U-boat was able to remain surfaced "for several hours." He gives no account of the fourth, fifth and sixth nights. Regardless of what U-234 actually was doing, these accounts demonstrate the protection provided by the special radar with which the U-boat was equipped; which could search the ocean and skies for miles around within a split second without giving away the U-boat's location.[604] The cutting-edge radar system had already saved the U-boat serious incident once, having early in the voyage detected anti-submarine airplanes, allowing Fehler to evade danger long before the planes could get a fix on the U-boat. [605]

Hirschfeld's account of these critical first days in the Atlantic, while brief, differs markedly from Fehler's. He states that "during the first night we

were obliged to dive twice because of aircraft,"[606] the connotation being that during the rest of the first night and on the remaining nights, the boat ran surfaced. Later analysis of Fehler's account will prove even greater disparity between what was written in the logbook and what appears to have actually occurred.

In trying to decide which record is true, Fehler's, Hirschfeld's or the seemingly faulty logbook, the operational situation of the U-boat must be considered. Fehler was now on the open Atlantic where U-boat interdiction was considerably leaner than on the North Sea and where he had much more room to maneuver surfaced and the benefit of the best radar. Additionally, in this part of the Atlantic where it was harder to support anti-submarine activity from land bases, U-boat detection by the enemy was usually made only upon a U-boat attack upon an enemy ship, and therefore a U-boat that did not attack was relatively safe from detection.

Fehler admitted as much in an undated letter written to Harry Cooper, president of Sharkhunters,[607] in which the captain stated he was little concerned about being discovered; he had no intention whatever of attacking anything. In fact, he intended to steer clear of all contact.

Considering his superior radar and all of these favorable conditions and the greatly improved fuel economy and speed of running surfaced as opposed to snorkeling, Fehler had comparatively good reason to run surfaced, at the very least during the dark of night. He even writes in his letter to Cooper, "Later on in the open ocean, staying submerged during daytime offeres (sic) a fair chance to pass through undetected," inversely inferring that he did, indeed, sail surfaced at night, despite the logbook's entries and again corroborating Hirschfeld's account.[608]

Conversely, Fehler had very little reason to run submerged. Perplexing and contradictory as it seems, however, the logbook records that Fehler had, in essence, "gone to ground" and remained submerged. Considered against the U-boat's operations in the Iceland/Faroe Island Narrows, its superior radar equipment, Fehler's supposed concern for fuel economy, and other conditions as have been outlined, sailing submerged in the open Atlantic for six days straight seems unlikely. In the context of a second, more intriguing, escape scenario, however, as we shall see, such entries in the Bundesarchiv

logbook make good sense - as a cover-up for the period of time between 30 April through 5 May, when U-234 may have disappeared on a secret side trip.

A second set of telling data regarding such a detour arises from conflicts within the Bundesarchiv logbook and between the logbook and another record, as well. During the voyage, General Kessler was entering in his diary the U-boat's position coordinates taken at noon each day.[609] His postings match exactly those of the logbook until 30 April, when Kessler, for the first time during the journey, failed to post coordinates. On that day, the Bundesarchiv logbook showed coordinates at noon of 61° 58' N, 14° 49.5' W, a distance from the previous coordinates that roughly represented the U-boat's average speed thus far.

The following day, Kessler posted the exact same coordinates for 1 May that the logbook showed for 30 April - 61° 58' N, 14° 49.5' W. For 1 May, the logbook in its turn showed 61° 14' N, 16° 08' W, indicating U-234 had traveled the average daily distance again. Up to this point, because the logbook entries remain consistent with daily distances covered, one would assume the logbook is correct and Kessler had just made a mistake. That Kessler's diary exactly matched the coordinates in the logbook until 30 April and then, even when it differed, it showed only an apparent error in transcription of being off by one day, supports this theory. Probably Kessler was receiving his data secondhand as provided by the sophisticated radio navigation system U-234 deployed. But Kessler never corrected his 1 May entry, even though it obviously would have been wrong when he updated his diary the following day, on 2 May.

Reviewing the coordinates given in the Bundesarchiv log beginning the very next day, however, on noon of 1 May and again on noon of the following day, shows the U-boat traveled barely half of its already slow average daily distance. Such an adjustment considered with Kessler's erratic entries of a few days prior may suggest a correction of some sort was made in the log. This suggestion becomes more plausible when considering that the distance traveled for the same 24 hours, as actually written in the log, is over 60 statute miles - five statute miles above the daily average - despite the logbook coordinates showing a half-day's average travel. One minor

course change recorded during that period would hardly have impacted the overall distance traveled and therefore could not be accountable for the discrepancy between the two entries. The record therefore suggests uncertainty about where U-234 was, beginning on 30 April.

The stream of conflicts within the logbook consistently increased from this point in time forward. A second inaccuracy occurred two days later, between 3 and 4 May, when the posted coordinates recorded the U-boat again moved only a handful of miles, certainly fewer than ten. But the logbook posted 54.7 statute miles traveled with no course changes significant enough to account for the difference. Perhaps tellingly, General Kessler's diary on 3 May fails for the second time to record any daily coordinates at all. This herky-jerky motion of the U-boat from day to day as recorded in the logbook, which is out of phase with Kessler's also herky-jerky data, but which Kessler seems to try to account for, seems again to indicate uncertainty as to where the submarine actually was after 30 April.

A third conflict that continues the uncertainty - the largest of the three - occurs in the 24 hours between 5 and 6 May. The coordinates posted show distance traveled of about half of the 55-statute mile daily average, for a total travel distance of about 30 statute miles; but the actual distance reported records a whopping 99 miles - close to twice the average distance! This is the furthest distance U-234 traveled, by far, recorded to that point in the journal. What compounds this truly significant and very obvious error is that course bearings given throughout the 24-hour period are almost consistently 220 degrees, a straight line west southwest, but the end coordinates show U-234's position was about 30 miles southeast of its position 24 hours prior. In other words, both the distance and the direction traveled are in serious discrepancy within the log.

The distance traveled, as entered directly in the logbook, differs not only by about 60 miles, or three times the distance calculated from the coordinates, but the logbook is off by almost 90 degrees in direction, or one-quarter the arc of the compass, as well. As noted earlier, marginal differences in a course tracked by coordinates compared against a course tracked by bearings and distance are to be expected. Winds, currents and human error of just fractions of a degree will create variances in position when

navigating a submarine. But the size of the discrepancies listed above are hardly explainable by anything but the most profound errors, suggesting almost no regard for where the U-boat actually was.

The variance between the coordinate positions posted on 5 and 6 May, compared to the direction and distance plotted, is just too extreme. If one does not believe U-234 actually sailed southeast - per the coordinates posted - but rather sailed according to the dead reckoning information, or vice versa - an entire day is lost. But there is nothing in the document to suggest a correction was made for a lost day. In our scenario of U-234 making a secret side trip, unaccounted for days are central to understanding what the U-boat may have been up to during this time. The only other answer for the "lost day" would be if the U-boat came to a complete standstill for 24 hours, which runs counter to all accounts. But even if it had, why would Fehler have recorded U-234 was traveling in two directions at once?

U-234 did not stand still; quite the opposite. A last, and also substantial, series of conflicts between the Bundesarchiv logbook and other sources occurs on 11 through 12 May, which included the final 24-hour period recorded in the log - which ended on the 12th, when Fehler apparently first radioed his intent to surrender. The final coordinates entered in the logbook - 49° 20' N, 31° 51' W - were for noon 12 May. This is in a line with the course plotted from 7 through 12 May, which adhered to an average bearing of 220 degrees, or south southwest.

Surprisingly, however, actual bearings on the 11th and 12th swung widely, from 180 degrees, or straight south - a course pursued throughout most of 11 May - to a course change to 260 degrees, almost due west, which turn occurred at 2:35 on the morning of the 12th. The distance covered during 7 through 10 May, as calculated from the daily coordinates, was about 60 to 70 miles per day, again about the average. But on the 11th, the coordinates show a doubling of velocity to about 120 miles. The actual total distance sailed entered in the logbook for 12 May is 201 statute miles, which, while a great increase in speed, given the drive south then dogleg west, calculates closely enough to match the 120 miles represented by a straight line from start coordinate to end point.

At the outset these entries appear to be accurate, although, as noted, representing a great increase in U-234's velocity. Intercepted radio transmissions from U-234 to Halifax that included direction-finder bearings corroborated that the U-boat was sailing toward 260 degrees on the compass.[610] The direction-finder also showed, however, that on the morning of 12 May, U-234 was actually at a position 70 to 80 miles north, and more importantly, 150 miles east of the position calculated from the times and bearings recorded in the logbook. At 4:15 a.m. on 12 May, the intercept's direction-finder coordinates had put the U-boat at 51° 00' N, 27° 00' W. The U-boat's position as extrapolated from the logbook's speeds and bearings, however, indicate it should have been at 49° 20' N, 31° 00' W, give or take a few miles. Therefore, as noted, it was trailing about 150 miles east-northeast of the position recorded in the logbook.

Fehler further complicated things - apparently with a plan in mind - by falsely transmitting during that same 4:15 a.m. radio message that U-234's position was 50° 00' N, 30° 00' W, significantly differing both from the direction-finder coordinates and the calculations made from the logbook data. So we have three considerably different positions given for U-234 at 4:15 a.m. 12 May: one from the direction-finder of the intercepted transmission, one calculated from the Bundesarchiv logbook, and one that Fehler reported to Halifax. The direction-finder location is by far the most likely to be accurate, since it is the only objective source.

Drawing a line on a map with one end touching the point marking the direction-finder coordinates and the other end the point marking the logbook position posted for noon 12 May, shows that Fehler's radioed false position falls directly on that line and almost at its center. In the 4:15 a.m. transmission he also gave his speed as 8 knots, but he was actually sailing 16 knots according to calculations made from the intercepted transmissions as well as Fehler's own later admission.[611] From U-234's actual position as revealed by the direction-finder, at the 16-knot speed it was sailing, U-234 would make the position falsely recorded in the logbook just about noon - the time of the daily logbook posting. Doing so would bring it in conformance with the fabricated logbook scenario suggesting that U-234 was heading on a much more southerly course well west of its real position, rather than the fast westerly track it had actually been on. Thus he would

continue an illusion he had created that U-234 was sailing a conventional course to Japan on the Great Circle. And U-234's position would be directly in line with the previous six days of posted coordinates, further validating the false entries in the logbook.

Fehler then does a strange thing. Having carefully set up the deception to the point of entering false data in the logbook, instead of heading straight for those noon coordinates already posted to complete the illusion, Fehler proceeded on a more westerly route. He also abruptly discontinued his second logbook. There are no more entries in the Bundesarchiv log after noon 12 May.

Why? Possibly because Fehler's deceptive first transmission to Allied forces reported a false position not only calculated to camouflage his movements, but those coordinates would show U-234 proceeding on a course that passed exactly through the intersection of the boundaries of Allied naval control of the Atlantic Ocean. East of this point was the jurisdiction of the British and French, which he was racing out of. West and north of it was the jurisdiction of Canada; and west and south of it was the jurisdiction of the United States.

Probably at 4:15 a.m. - the soonest Fehler felt with confidence that he could reach the desired coordinates by noon - he falsely radioed the information to the Allies that he was at that moment breaking into the American-controlled sector of the Atlantic. He would be expecting to capitulate to the United States and surrender his boat, passengers and deadly cargo and then his mission would be over.

Instead of the United States responding to Fehler's radio message, however, Canada's Halifax station first hailed the U-boat and commanded it to sail for Nova Scotia. For Fehler, surrender to Canada, apparently, was unacceptable; demonstrated by the fact that he began a series of activities designed to avoid Canadian capture. First, instead of heading toward the noon coordinates he appears to have so carefully set up for his cover story and had apparently already posted in the logbook, he continued on a very fast westerly track well north of the camouflage course he had created. Presumably, realizing that Canadian forces were going to try to claim U-234, Fehler concluded the best way to avoid the Canadians was to stay

away from where they expected him to be. Instead of heading southeast, as reported, he stayed north for the time being.

Second, further realizing that general knowledge of his duplicitous maneuvers would reveal a hidden agenda, and therefore concluding that he should leave no record henceforward, Fehler discontinued keeping his semi-fictional second logbook. Beyond this point, he probably realized it would be more difficult to create a workable cover story for a convoluted logbook than to explain his reasons for failing to complete the diary.

He could easily say the war was over for his boat, passengers and crew and so there was no need for further entries. At 9:45 p.m., Fehler reported to Halifax U-234's position again, 50° 00' N, 30° 00' W, the same position he claimed to hold at 4:15 that morning, even though he also reported a speed of eight knots in both dispatches, inferring the U-boat was on the move the entire time. The direction-finding coordinates for this second transmission, however, placed the U-boat at 50° 00' N, 34° 00' W. He had now moved from being well east of his reported position, as indicated in the morning transmission, to well west of that same double-reported position. According to the direction-finder coordinates for this dispatch, U-234 had traveled approximately 200 miles in 18 hours - or at least three times the average speed recorded in the logbook.

The U-boat was running at over 16 miles-per-hour, as noted earlier, or at over 90 percent of its top surfaced speed.

Captain Fehler admitted to making this mad dash over the Atlantic at "16 or 16 1/2" knots on "the night of 12 or 13 May" in his letter to Sharkhunters already mentioned. Hirschfeld confirmed, as well, that Fehler had ordered him to report false speeds and directions to Halifax.[612] Thus, once again, either the Bundesarchiv logbook and Fehler's uncoded transmissions are wrong, or the radio intercepts and both Fehler and Hirschfeld's later accounts are incorrect. The direction-finder information is by far the most objective of the evidence; it seems certain, therefore, that the dubiously-marked Bundesarchiv logbook now can be accepted virtually as a ruse to cover covert activities.

Fehler had an explanation for these mysterious machinations, though. In his letter to Sharkhunters, which is a response to Sharkhunters President Harry Cooper's own suspicions about the activities of U-234, the Captain described how he met with his officers and German passengers after hearing about the Reich's capitulation on 8 May to discuss what he should do about surrendering. While many opinions were openly voiced in this meeting, according to radio chief Wolfgang Hirschfeld, Fehler never divulged his own opinions or intentions.[613] General Kessler independently confirmed this in a post-war interrogation. But Fehler later reported in the Sharkhunters letter that he and General Kessler had decided prior to leaving Norway that if capitulation was necessary he would not surrender to British forces, allegedly because the food, conditions and treatment of POWs would not be as good as in the United States. As a result, according to the letter, Fehler had determined to get out of the British quadrant of the Atlantic and so was racing toward the setting western sun in the direction of America.

Fehler's explanation of U-234's desperate dash does not hold up under close scrutiny, though. He asserted in his letter that on the night of 12 or 13 May, when Tomonaga and Shoji, the Japanese officers on board, heard the high revolutions of the propeller shafts, that they deduced Fehler had decided to surrender the U-boat.[614] According to Fehler, rather than be captured alive, which would be disgraceful for the two Samurais, the Emperor's officers committed a form of hara kari by each taking an overdose of Luminal, a sleeping drug. They were left to this less dramatic form of suicide because Fehler had confiscated all of the passengers' weapons when they boarded the U-boat in Kiel, including Tomonaga's ceremonial samurai sword.[615]

Fehler stated in the letter he sent to Cooper that he planned, had the Japanese not taken their lives, to drop the officers either on the Spanish or Portuguese coast or on the Canary Islands. The discrepancies in Fehler's assertion are obvious and two fold. First, the radio intercepts of 12 April are in plain text, they are not coded messages, and they included falsified coordinates, both conditions indicating the messages were intended to open communications with the Allies - albeit either very cautiously or with a hidden agenda in mind. Regardless of his agenda, the German capitulation

already having occurred, Fehler knew better than to think he could open communications with the Allies and then just sail about the sea wherever he pleased.

He knew the Allies would demand a swift capitulation of U-234, too, which they did. Thus almost certainly, the evidence demonstrates that Fehler was already in the beginning stages of surrendering when he was informed the Japanese had taken the poison, which contradicts his story about planning to take the two officers to safe harbor. And second, Fehler freely admitted that at the time the Japanese poisoned themselves, U-234 was headed west at high speed, and had been doing so for about 200 miles - supposedly since 2:35 that morning according to the logbook, but certainly since 4:15 a.m. He added that his reason for this run was to escape the area of British control.

But the three locations Fehler claimed he planned to drop off the Japanese - Spain, Portugal or the Canary Islands - were in very different directions than the one he was racing toward, and they were well within the British area of jurisdiction. The fact he was racing west when the boat's doctor told him the Japanese had taken the poison contradicts his explanation of intending to take them to the Iberian Peninsula or the Canaries, again revealing that he had no intention of taking Tomonaga and Shoji to safe haven. The evidence shows he was bent on surrendering to the United States regardless of the consequences to Tomonaga and Shoji. In fact, according to his own account, upon hearing the Japanese had taken the poison, Fehler even refused to stop his U-boat to submerge below the stormy surface weather long enough for U-234's doctor to recuperate from an alleged case of seasickness so he could treat the poisoned men.

Hirschfeld's account, while not stating whether Dr. Walter was or was not sick, described Walter's activities in ways that demonstrate he was active and participating in the events underway throughout their entire span, apparently contradicting Fehler's report of Dr. Walter being sick.[616] And Fehler's assertion that the seas were so heavy as to cause a seasoned U-boater like Dr. Walter to become seasick does not jive with the account provided in the USS Sutton's day log that described the weather as clear and that the seas were moderating on that day.[617]

In fact, on the contrary, the doctor was healthy enough according to Hirschfeld, that Fehler ordered him, in essence, to oversee the Japanese's deaths. "Tonight we must get the Japanese overboard," Fehler explained to Walter. "If the Americans get to them, they'll do everything they can to bring them round. See to it that they die peacefully,"[618] he ordered the doctor.

Granted, Fehler may have been trying to fulfill Tomonaga's and Shoji's last wish to die in peace and with honor. But why would he tell a series of lies in his letter written forty years later, in justification for not reviving them, rather than tell the simple, honorable truth? The evidence suggests that whatever Fehler's hidden purpose, its end would be better served if Tomonaga and Shoji were dead. Perhaps they had discovered the Captain's underlying orders and Fehler feared they would talk too openly if captured. Or perhaps he feared they would sabotage the U-boat before he could surrender it, rather than let its important cargo fall into enemy hands.

What ever the case, considerations that Fehler was planning to get clear of the British area of control and later re-enter it to drop the Japanese officers off in the Canaries or Spain are highly improbable. Everything Fehler did at this time seems to be designed to surrender U-234 to the United States.

Fehler later asserted, again in his letter to Sharkhunters, that following his talks with General Kessler before leaving Kiel, and after at least two discussions with his officers and non-Japanese passengers while on the high seas - including Kessler again - that he had decided to surrender to the United States. This he said he did with Kessler's support. But Hirschfeld wrote that in the surrender discussions at sea, Kessler was in favor of completing the mission to Japan or of heading for Argentina, as were most of the other officers in U-234, a few of whom favored returning to Germany.[619] Kessler unknowingly corroborated Hirschfeld's claim in a post-war interrogation, adding also that Fehler never expressed an opinion about where to surrender.[620]

Argentina, as an alternative, was a covert ally of Germany's and surrender there allowed the expectation among the passengers and crew of U-234 that they would have a short, uncomplicated stay in South America before a quick return home to family and friends - and rebuilding lives in Germany.

A few dissenters, however, preferred to land on some South Sea island paradise instead of ending their journey in Argentina. Hirschfeld reported that only Party Judge Kay Nieschling and the boat's doctor, Dr. Walter, voiced their support for surrendering to the United States.

Importantly, as noted, Kessler was not in that small group. Thus we have yet another conflict in the record - one of several that crop up between Fehler and Hirschfeld: was Kessler in favor of surrendering to the United States or not? Again we must try to determine who is telling the truth. Given Fehler's obvious prevarication regarding his intentions toward Tomonaga and Shoji, and his intentional misrepresentations in the Bundesarchiv logbook, as well as the deceptions in his transmissions to Halifax compared against Hirschfeld's consistently provable and accurate accounts, Hirschfeld's version is probably correct. Thus Kessler's preference to go to Japan or Argentina is more probable than Fehler's later assertion that Kessler had agreed to surrender to the United States.

Fehler's uncoded radio transmission of 12 May, intended to open the way to surrender, compared against his refusal to surrender to Canadian or British forces, clearly leaves only the United States as Fehler's intended surrender objective. Apparently he later tried to rationalize this plan by providing cover for his real intentions by cunningly suggesting Kessler agreed to it in the context of other considerations. And Hirschfeld's writing that Fehler never actually revealed his intentions to any of his passengers or crew about where he would surrender, in view of the fact almost all of the passengers and officers desired a course other than surrender, further supports the premise of this hidden agenda.[621] The evidence suggests Captain Fehler just continued to quietly manipulate events until U-234 was "captured" by the USS Sutton.

The only explanation he made for his decision to surrender to the United States appears to have been the one recorded four decades later in the dubious account he gave in the Sharkhunter's letter. As has been shown, Captain Fehler had demonstrated by both word and action that he was bent on surrendering U-234 to the United States. His apparent determination to do so even before the U-boat left Germany - his alleged, though now dubious, discussions with Kessler while still in Kiel to achieve this end, if

true - indicates he already may have been laying the groundwork even then. Or perhaps he was simply maintaining the illusion some forty years later when he wrote this account in the Sharkhunters letter.

At any rate, his mad dash across the Atlantic, carefully manipulated to reach American controlled waters at a critical point in time, drives home his apparent determination to surrender only to the United States. So does his silent decision to land there against the desires of his officers and high-ranking passengers. Fehler's intentional deceptions to Halifax combined with his determination to sacrifice his Japanese passengers rather than off-load them in Spain, Portugal or the Canary Islands - or to even make an effort to save their lives at all - all testify of a personal commitment on Fehler's part to surrender only to the United States. This fixation seems far out of keeping with a reasonable assessment of the situation he was in. Even more shocking - and revealing - is the fact that the United States Navy aided and abetted Fehler in his efforts to escape Canadian control.

Hirschfeld recorded that while Fehler was in contact with Halifax, sending deliberately false reports about his position and movements, U-234's radio communications suddenly were jammed by very powerful transmissions. [622] Apparently somebody did not want U-234 in communication with Halifax. Each time Hirschfeld tried to transmit to the Canadian station, regardless of which frequency he used, the jamming would begin anew, which suited Fehler just fine; [623] the overrunning of his radio communications kept the Captain from having to continue his deceptions to Halifax. Soon, the USS Sutton could be seen cresting the horizon.

The Sutton reached U-234 shortly before dark. Using Morse code from a lamp, the destroyer ordered U-234 to "head for the Gulf of Maine and to ignore all further communications from Halifax. [624] From this Hirschfeld deduced that the Sutton had done the radio jamming. Soon the Sutton slipped alongside the U-boat just a few hundred yards to port, but waited until morning to send a boarding party. In the meantime, Hirschfeld witnessed Dr. Heinz Schlicke throw several small tubes of microfilm overboard from the conning tower into the Ocean. [625] "There goes the rocket that could fly the Atlantic," remarked Schlicke. As history will

someday discover, Schlicke possessed more than plans for a missile that could fly from Europe to America.

In the morning, a heavily-armed prize crew from the Sutton crossed the distance between the two vessels in a small craft and boarded U-234.[626] Nerves were on edge as the outnumbered but well-armed Sutton contingent chained the hatch open to ensure Captain Fehler did not try a last-minute dive. Documents were given to Fehler instructing him in the procedures for surrendering his boat and crew; then a skeleton crew of German sailors was left on board to operate the vessel while the remaining passengers and crew were ferried from U-234 to the Sutton. Hirschfeld, one of the few German crewmen left onboard the U-boat, later noted that U-234 was ordered to make for the Gulf of Maine. Later, this order was changed to direct U-234 to head for the Naval Yard at Portsmouth, New Hampshire.[627] Once again Hirschfeld's impeccable account is verified, this time by the Sutton's activity report,[628] which recounted how the order was changed for the Sutton to escort U-234 to Portsmouth instead of the previous order that it report with the U-boat to Cascoe Bay, Maine.

The Sutton, for its part, before locating U-234 had been working alongside two Canadian ships that were also trying to find the U-boat. According to excerpts prepared from the Sutton's war diary [629] - the diary itself, perhaps significantly, apparently is not available - during the operation the Sutton had broken away from the Canadian vessels, which continued on an east-northeasterly bearing toward the last reported location of U-234. The Sutton headed south instead, on a trajectory that allowed it to intercept the U-boat based on direction finder coordinates the destroyer had received. The Sutton's war diary notes that the Canadian ships apparently realized they had "missed their target," but continued to head off in an east northeasterly direction. Nothing is said in the war diary excerpts of the Sutton's having jammed the U-boat's radio transmissions or of ordering U-234 not to respond to Canadian radio communications.

So, having unwound the circular puzzles and unlocked the conundrums of U-234, how do we interpret the web of information, disinformation and contradictions surrounding the U-boat's surrender? The first step is to try to determine which evidence is sound and which is not; an objective we have

tried to achieve throughout this and other chapters. Now we must summarize our findings about the evidence and its sources. Of the five sources of information about U-234's movements - the direction-finding coordinates, the Bundesarchiv logbook, the accounts recorded in Hirschfeld's two books, Fehler's letter to Sharkhunters, and Fehler's position reports to Halifax - the direction finding coordinates are by far the most objective and therefore reliable.

The evidence appears to indicate - if not outright prove - that large portions of the Bundesarchiv logbook are fabrications. And they appear to be so at least from the first mismatched coordinates recorded by Kessler on 30 April, if not earlier. They extend through the three series of unaligned bearings and coordinates recorded between 1 and 6 May, and continue through the outright lies apparently recorded by Fehler from then through to 12 May. Possibly the logbook was counterfeited from the very beginning, but more likely it was casually kept up to maintain an illusion for later investigators, which was that U-234 had never varied from its intended mission to Japan until Fehler made the decision to surrender. Considering all of this, the direction-finder data can be considered most trustworthy when measured against other hard documentation.

But what about the human component? Hirschfeld confirms in his memoirs that Fehler ordered him to report false speeds and bearings to Halifax,[630] thus indirectly substantiating the idea that Fehler may have intentionally falsified other data about U-234's travels as well. Although Hirschfeld sometimes confused the dates of certain events, he otherwise has proven to be accurate about the events he recorded. People often forget exact dates 50 years past but still vividly recall the events, experiences or feelings that occurred in association with those dates. Hirschfeld's unique but accurate recounting of the enmity between Kessler and Göring, the electrical fire fumes that he described were vented by reversing the snorkel valving, and the harrowing story of almost being chopped into pieces by the propeller of the steamer, are all validated by corroborating documentation that authenticates Hirschfeld's accounts. His final recounting of the change of orders taking U-234 from Maine to Portsmouth Naval Yard, as well as the accuracy of other details, puts an exclamation mark on his reliability.

The one point of contention between Hirschfeld's account and the theory posited in this text lies in the fact that, despite referencing the mysterious message from Hitler's Berlin Bunker, Hirschfeld never mentioned any activity while U-234 was at sea that can be construed as picking up a secret passenger. He detailed activities that occurred on the boat throughout the relevant time-frame, and even once stated that U-234 "continued to head south at full speed" during a time when, according to the secret detour scenario, it must have been heading west. But none of these activities can be interpreted either to relate to, or to disprove that U-234 secretly picked up a mysterious passenger.

The only incongruity, and it is significant, is that according to the Bundesarchiv logbook, U-234 was still sailing at steerage speed during this time span, not at full speed as Hirschfeld writes. The idea that U-234 was traveling at full speed at any time prior to 11 May would indicate the U-boat was actually racing west to rejoin its camouflage course. If it had raced south at full speed for any amount of time at all, U-234 would have well overshoot to the south of its surrender point on the day it was turned over to the Sutton, which, of course, did not happen. Only in reporting that U-234 had sailed at full speed prior to 11 May does Hirschfeld suggest a fragment of the premise that the U-boat actually must have been traveling west, not south.

It seems implausible that Fehler could have secretly picked up a mystery passenger without his chief communications officer knowing about it. Certainly Hirschfeld, as were all others involved in the maiden voyage of U-234, was sworn to silence if it had, indeed, carried an important enigmatic passenger to safety in the final days of the war. Perhaps Hirschfeld's writing that the boat was sailing south is a single lapse representing his lone concession to the weighty burden of carrying such a secret for so long a time.

Uncharacteristic as it may seem, it appears to be the lone detail that would stay what is otherwise an avalanche of evidence favoring the theory that U-234 made a detour to pick up a mysterious passenger who made his escape on board U-234. In an effort to resolve this question and to learn more about the journey of U-234, in late 1998 I sent Mr. Hirschfeld a letter

through the Sharkhunters organization, requesting an interview. As I had been advised probably would happen, Mr. Hirschfeld chose not to respond to my request.

Unlike Hirschfeld's lone impropriety, Fehler's activities are riddled with deceitfulness. From the falsified Bundesarchiv log to his handling of the Japanese prisoners, from his documented lies to Halifax to his contradicted stories about Kessler's inclusion in the plan to surrender to America, Fehler's story is grossly inconsistent with the known facts and obviously and intentionally misleading. The only question is, for what purpose?

With this in mind, combining the information we have learned in this and in previous chapters, what picture can we assemble of U-234's activities and surrender and Bormann's escape? Is any image becoming clear that would indicate the U-boat's mission?

Taking everything we know about U-234 into account - the messages to it from the Führer Bunker; the wrestling for command of the U-boat; the profoundly slow reported travel speed throughout most of the journey; the mysteriously truncated Library of Congress logbook and secret visit to Bergen; the carelessly doctored Bundesarchiv logbook; the coincident timing as recorded in the Bundesarchiv log of Fehler's alleged but illogical decision to run submerged during the six critical days between 30 April and 6 May compared with the reported escape of Martin Bormann during that same time period; and considering the little-known but seemingly reliable report that Bormann escaped in a "large" U-boat; Bormann's connections and control of U-234's cargo, and probably, although covertly, his control of Dönitz himself; as well as U-234's mysterious dash westward apparently from points unknown east of its professed position before surrender; and Fehler's determination at all costs to capitulate to none but the United States - considering all this, it seems probable U-234 was the "large U-boat" reported by Soviet intelligence that had the secret mission of rescuing Martin Bormann from Germany, delivering him safely to Spain, and delivering the cargo to the United States in exchange for Bormann's freedom.

Keeping in mind that both the above and the following are assumptions based upon the best evidence as detailed previously, the most probable

scenario that can be reconstructed appears to look something like this: With a struggle over chain-of-command of U-234 raging between Dönitz and Berlin, and having already received communications from Hitler's bunker to stay put, Fehler departed Kristiansand according to Dönitz's order, but at very slow speed in order to remain close at hand when the time came to respond to an expected dispatch to pick up a powerful passenger from Berlin.

Apparently, the chain-of-command issue was still being contested on 18 April, when Fehler secretly altered course to Bergen to check for further communications via BdU North Commander Rosing and the U-boat communication center there. Realizing upon his decision to detour to Bergen that his logbook later would reveal his surreptitious movements and potentially expose his secret mission, he abruptly discontinued keeping this log from the 18th forward. Fehler would later begin a new log designed to camouflage U-234's movements. At Bergen Fehler apparently did not receive the communication from Rosing he anticipated so he continued on a holding pattern westward across the North Sea. He proceeded extremely slowly - no faster than a man walks, just fast enough to maintain steerage of the U-boat - so he would be close at hand when U-234 was needed for the secret pick-up of his mysterious passenger.

On 21 April, Fehler received another order, apparently coded, that advised him not to proceed beyond the vicinity of Ireland. Upon receipt of this order, he broke from his holding pattern in the North Sea and continued slowly around the north of the United Kingdom isles. In the early morning hours of 30 April, at about the same time Martin Bormann was escaping Berlin by light aircraft, U-234 began a quick six-day cruise back to Germany and out to sea again under cover of a reported six-day submerged voyage in the Atlantic. The falsified "submerged voyage" would in effect make U-234 "disappear" during the deceptive detour, in order to maintain a cover story should she be seen elsewhere or should another vessel fail to spot her in a location she otherwise should have been.

There is no record of U-234 receiving a message to return to Germany to pick up its passenger, but the author believes such a message was sent and received. The author suggests it was at this point that Fehler turned his U-

boat east, submerged during the day and surfaced at night, and headed back into the heavily patrolled North Sea through the strait between Scotland and the Shetland Islands, then turned south - straight for Hamburg. U-234 made Hamburg in under three days, sailing at top snorkeling speed when submerged, with radar active, and probably with covert support and protection from well-placed Western Allied sources - remember the planes that did not attack in the Kattegat.

Quickly picking up Bormann, the large U-boat described by Stalin's intelligence reports then made way, again under surreptitious Western Allied protection, through the English Channel and into the Bay of Biscay, where it rendezvoused with an unknown craft to offload Martin Bormann and possibly his escape partner Heinrich Müller.

Racing west and needing to maintain a cover story that would stand as the official history of the vessel, Fehler realized he was running out of time to surrender following the German capitulation order on 8 May. He needed to be in a credible location along his previously planned journey before surrendering, in order to keep his cover story intact, or else his wayward movements might be revealed. In fact, and more important, he also needed to ensure he was in the American sector of enemy surrender responsibility to guarantee his cargo would be received by the pre-agreed upon country, the United States - and its Manhattan Project. By 12 May, he felt he could report a position in the American zone that he could reach before it was discovered to be false, and so he duly reported that position by radio.

But calamity nearly ensued when Canada, through Halifax, received U-234's first surrender transmission and ordered Fehler's capitulation before the United States responded. To maintain his cover and avoid surrendering cargo and passengers to an unintended party, Fehler was forced to abort his camouflage course. He turned instead to an even deeper level of deception, running free to the north and reporting inaccurate bearings and speeds - and for a period of time not reporting at all - until the USS Sutton was able to decoy Canadian ships away and jam U-234's transmissions. The Sutton then located and took possession of the U-boat and her fugitive, invaluable cargo and passengers and escorted her to Portsmouth.

Chapter Fourteen - Occam's Razor

"It is axiomatic that you keep your eye on the number two man - the one who does the work" [631]

Allen Dulles, Commenting during the war about Martin Bormann

"Thyssen was [Bormann's] ace in the hole if he ever needed a personal pipeline to Allen W. Dulles." [632]

Paul Manning, author *Martin Bormann, Nazi in Exile*

There is no hard documentary, conclusive evidence that the secret escape mission of U-234 described in the chapters above rescued Martin Bormann. There is no "smoking gun" or proof beyond reasonable doubt. In fact, if the United States was in collusion behind the scenes, because such a revelation would have made an extremely negative impact on American moral authority and its treaty obligations worldwide, it is questionable whether a paper trail of the escape would have been left at all. The rarefied powers that would have overseen the negotiations would surely be careful not to leave tale-tale signs in this most singular of diplomatic dealings.

On the contrary, they would be certain to cover any tracks that may have been left behind. The most proof we can hope for in this vacuum, therefore, is circumstantial evidence, anomalies and tale-tale indications of some unexplained event. The simplest explanation that includes all of the evidence would be the most likely answer for what occurred. So says Occam's Razor, the scientific principle that defines any reputable theory. It states: Entities must not be multiplied beyond what is necessary. In other words, the simplest theory that fits the facts of a problem is the one that should be selected. If history is an objective science, Occam's Razor should apply.

Despite the lack of irrefutable proof, the volume of circumstantial evidence suggesting Bormann successfully escaped is substantial. This evidence includes Hitler's order that Bormann be flown out of Berlin, which matches Soviet intelligence reports that he was, in fact, flown out within 24 hours of that order. In turn, the report of this escape flight aligns remarkably well with many details of a singularly unique, but true, actual escape flight that was documented separately from the Soviet account and separate of those who revealed Hitler's order for Bormann's escape flight.

There is the report that the second stage of Bormann's escape was made in a large U-boat, which meshes well with the details of the mammoth U-234 having received radio messages that were interpreted by General Kessler to mean a senior official from Berlin was on his way to U-234. The convoluted record of the U-boat's travels and the excess of effort expended to hide those actions add veracity to this report. And there is the evidence suggesting that Captain Fehler was determined to surrender his important passengers and cargo to the United States - even at the cost of the lives of the Japanese officers onboard - rather than complete his important mission to Japan or to surrender elsewhere.

Conversely, the United States appears in advance to have known about and been determined to obtain the U-boat and its cargo. On two different occasions Allied war planes easily could have sunk U-234 but did not, apparently opting to just monitor the U-boat's movements. In the end, the United States jammed U-234's radio transmissions to Halifax, thus ensuring the U-boat would fall into American hands. Combined, the primarily objective, disparate facts recounted in this volume, and all the detailed evidence supporting them, create a scenario for Bormann's escape far more likely to have occurred than the traditional history, which is composed almost entirely of the suspect, often irrational eye witness accounts of Nazi sympathizers and Hitler henchmen.

The witnesses for the traditional history all potentially had reasons for ensuring Bormann was presumed dead, as do many others who would like the world to come to the same conclusion. The traditional history leaves many crucial events unexplained, however, while the theory advanced within these pages resolves almost all - and certainly all of the critical -

previously ignored anomalies and mysteries surrounding the events. By applying Occam's Razor to the evidence, far more of the objective evidence is considered and mysteries explained by the new scenario than by the old, disjointed account; so one must conclude that it is time the traditional history give way to the new, more congruent one.

To believe a great portion of the actions outlined in this book actually occurred, however, one must believe that the United States government, in some form and at some high level, was in league with Martin Bormann and those involved in his escape. These government entities would probably have assisted in the escape by ensuring safe passage for the U-boat by "pulling strings" where necessary, as demonstrated in the "non-attacks" by the warplanes overflying U-234 in the Kattegat and the Atlantic, and possibly by allowing U-234 to sail unimpeded through the English Channel.

Certainly the jamming of U-234's radio transmissions to break contact between Halifax and the U-boat appears to be direct intervention on behalf of the United States government to exclude its ally, Canada, from participating in the capture. And to believe the United States took part in such events is to admit it also maintained a clandestine relationship of some nature with Martin Bormann after the war, protecting him from a distance. Such an affiliation with one of the kingpins of the Nazi Empire would be anathema to the American people and also to the majority of Europeans who suffered under his Nazi Party regime.

Most especially, the Russians would be enraged. If a connection between the United States and Martin Bormann became known, Joseph Stalin immediately would have suspected treachery on behalf of his ally the United States - which, in fact, he did. In September 1945, Stalin had broadcast the assertion that Bormann was in Allied hands.[633] If his accusations were genuine, Stalin would have wondered what Bormann had given to receive such rarefied assistance.

Whatever it was would have been of utmost importance on the world stage, and would have been in direct violation of the Allies' unconditional surrender treaty requirement. The participating American leaders knew this, therefore evidence suggesting a relationship between Bormann and the

United States would need to be carefully avoided, if possible, or destroyed or buried deep, if not.

So it is that proof of an arrangement between Martin Bormann and the United States, if there was one, does not appear to exist. What is apparent, however, is that the United States went to some trouble to ensure that such evidence of a relationship does not exist! During my research in the National Archives I and II in College Park, Maryland, I tried to locate all of the documentation about Bormann that I could find within State Department and, specifically, Office of Strategic Services files. I located several second-party reports notifying these agencies of sightings of, and meetings with, Bormann, suggesting the survival and whereabouts of a very alive Martin Bormann following the war.

I also located a key report in Record Group 457 file 190-37-11-1 box 192 that identified top Nazi fugitives unaccounted for immediately after the war, which does not include Martin Bormann or Heinrich Müller.[634] Apparently, they were considered accounted for by the OSS, although everyone else involved was searching high and low for them. In addition, many other authors, including Manning and Farago, have revealed compelling documentary evidence of a similar nature. Many of these reports are substantive [635] and were provided by sources the agencies labeled as reliable, such as a State Department report I found that indicated Bormann was living in Spain with a certain Leon DeGrelle, and was running a Nazi escape operation from there.[636]

This documentation is impressive. But while researching the evidence, the same index that led me to these documents also contained cards referencing mysterious other files about Bormann within Record Group 226.[637] Instead of being reports about sightings, the index descriptions seemed to suggest the documents were agency records regarding personal information about Bormann. These included details about his apartment in Munich, found in Record Group 226 file number 122640. His headquarters in Pullach is referenced in RG 226 file number 123900; and, most stunning, in RG -190-3-32-3 box 1022, resides an apparent evaluation stating that Martin Bormann was "the most powerful man in Germany." When I searched for these records, however, they were not in their files. There were

no placeholder cards substituted for the missing documents telling researchers the records were checked out to someone else. There were no slip sheets indicating the files were still classified and therefore not available. There was nothing. Just missing numbers in the sequence of the files.

I have spent many hours researching in the National Archives I and II, the Library of Congress and the Southeast Regional Archives in Atlanta, Georgia. During these research sessions I have reviewed thousands - probably tens of thousands - of documents that at the time of their origins were highly classified. These included Presidential records, extensive Manhattan File Records, captured German records, War Crimes Trials records and the records of U-234 and her captured passengers and crew members, as well as records from other U-boats and the State Department and OSS. Nowhere in my research have I come across documents missing from their files with absolutely no explanation, except in the case of Martin Bormann.

Such an omission is almost unheard of in the well-protected Archives, which has a stringent procedure for the handling of documents to ensure they are not lost or damaged. In every other instance I encountered, when a document was not in the file as it should have been, either a card was left in its place explaining that the document was at that time checked out to an archivist. Or a sheet of paper was left in its place stating that the document was still classified due to its importance to national security and therefore was not available for review. The only exceptions that I have found are these three missing documents about Martin Bormann. Certainly they are not required for national security a half-century after the events. Even if they were, there should have been an information card signifying this distinction.

When I described this situation to an archivist, I was at first greeted with mild disbelief. When he had looked through the file boxes and not found the files, however, he shook his head and exclaimed that someone had either refiled them incorrectly or that the State Department had removed them. He offered no further explanation. Thinking they may have been incorrectly filed, I carefully searched every folder in each of the deficient

boxes, but could not find the missing documents. One of the hard and fast rules in the archives is that a researcher may have only one box on a research table and that all other boxes must remain closed and on the cart provided for the transport of the document boxes.

The box on the table is the only one allowed to be opened at any time. All documents must be returned to that box and the box returned to its cart before another box may be removed from the cart to the table and opened. Boxes are not allowed opened at all while on the cart. This system is designed to ensure documents are not incorrectly filed or lost. That three files from various boxes, and even from different record groups, all concerning the same subject - Bormann - were accidentally misplaced, while the records of virtually every other subject within the archives seem to be immaculately kept, therefore, seems highly improbable. The more likely event is that the State Department or OSS - or its successor the CIA - which, like all contributing agencies maintain control of their documents while in the archives, intentionally removed the missing files about Martin Bormann. Why would the State Department or OSS/CIA have removed the files without explanation?

The reason seems obvious. There was information in the files that the agency did not want revealed; quite possibly information proving Bormann was alive and the OSS or State Department had helped with his escape and freedom. Any conceivable information about Bormann different than this should not require unexplained removal from the files. If the documents were sensitive to national security, certainly those who removed the files would have used the national security dispensation to cover the otherwise unexplained missing documents, rather than allow them to be conspicuous by their absence. The documents' unexplained disappearance certainly seems to indicate somebody is stonewalling.

Despite the traditional history, the overwhelming preponderance of particulars appears to demonstrate that Bormann survived, seemingly with American collusion. This evidence is supported by a plethora of reliable reports of Bormann's being alive and well following the war, advanced by a broad variety of observers many of whom had nothing to gain from such revelations. I have personally reviewed many such reports - possibly as

many as fifty. While some reports are fraudulent or specious at best, many others, when carefully scrutinized, continue to withstand the tests of time and concerted efforts to debunk them. Some are so sound in their details and the integrity of their sources as to seem unimpeachable - although many people have tried to prove them wrong - such as the extensive account given by Dr. Otto Biss, who provided medical services to Bormann in 1959. [638]

The only substantive evidence that Bormann did not survive Berlin is the reported positive DNA identification of the remains unearthed at the Lehrter Fairgrounds Station. As has been noted in another chapter, these findings must be viewed with skepticism since the body supposedly tested and positively identified was not buried at the location where the remains were disinterred, according CIA investigating agent James McGovern. And by May 1998, when the testing was done, Martin Bormann almost certainly had finally died and the remains tested may, in fact, have been his - substituted for those of the person exhumed at Lehrter Station.

If Martin Bormann escaped onboard U-234, one piece of information regarding his escape - one very important piece -remains unexplained. How could Bormann, at the seat of the Nazi Party and the Third Reich, Hitler's top lieutenant and mortal enemy of the United States, have negotiated secretly with the top leadership of American intelligence, politics and the military to arrange the surrender of U-234 and its potent cargo? Through what conduit could he have made a secret peace overture, a proposal that would not jeopardize him personally but would be taken seriously by the United States? The answer is not conclusive, as is little about Bormann's fate. Considering Occam's Razor and the facts outlined above, it may not be possible nor is it critical to this study to prove with certainty that Bormann found a pipeline to, and negotiated with, the United States. The requirement is to show only that such capabilities were available and that such events are the most plausible explanation of the evidence.

In looking at the possibilities concerning these negotiations and history as it unfolded, it is not surprising that another suspicious string of events and personalities with Bormann's stamp on them seem to be "coincidentally" connected. If certain events are, indeed, linked, as they appear to be, they

solve more historical anomalies that previously have been dismissed or ignored by the traditional history. Allen Dulles, President Roosevelt's personal envoy [639] in continental Europe and leader of the OSS on The Continent,[640] was operating an intelligence apparatus from Berne, Switzerland in February 1945 when he was secretly approached by an emissary of SS General Karl Wolff.[641] General Wolff was Wehrmacht Plenipotentiary for Italy, which meant he was responsible for all German occupation troops not fighting on the Italian Front, and he was head of the Security Police and Secret Police in Italy.[642]

Prior to this assignment he had been Himmler's personal chief of staff, SS adjutant to Hitler and liaison between the SS and I.G. Farben [643] - especially for the buna plant at Auschwitz during its construction. Through these offices and responsibilities Wolff was fully privy to the mysterious workings of the I.G. Farben plant at Auschwitz and its apparently enriched uranium product; and he was well connected with Martin Bormann and his inner circle of bureaucrats and industrialists. For many years, Wolff held the purse strings to Himmler's personal funds, most of which were garnered from Himmler's "Circle of Friends," a small but powerful cartel of business magnates that included I.G. Farben industrialists Bütefisch and Dürrfeld. [644]

Both men were central figures in the I.G. Farben plant at Auschwitz, and both were connected to Bormann through Farben's chairman, their boss Hermann Schmitz. Sixty percent of the funds Wolff managed for Himmler's personal interests and projects was provided by the Circle of Friends, while forty percent was provided to Wolff from Bormann,[645] either directly from party coffers or through the Party's Adolf Hitler fund, which Bormann also controlled.

The traditional history of the surrender of the German troops in Italy holds that Wolff suggested to Dulles through a secret emissary that they open negotiations for a separate capitulation of the German armies in Italy. Dulles listened to the envoy with interest and on 8 and 9 March [646] met with General Wolff in person at Dulles' apartment in Zurich. According to Winston Churchill,[647] and supported by the official reports of the negotiations,[648] Dulles told Wolff that the only acceptable capitulation

was full and unconditional surrender. The American, British and Soviet Governments were then notified of Wolff's query, according to Churchill. The traditional history asserts that Wolff then agreed to "pave the way" for the unconditional surrender of Germany's southern army, which he appears to have done. In the process of developing what was to be called Operation Sunrise, several more meetings were held between Dulles or his envoys and Wolff or his envoys over the span of the next two months.

According to this traditional historical account, on the surface all seems well and good; but it contains incongruities. First, according to Churchill's statement - although it is not necessarily supported by Dulles' official report and the files of Operation Sunrise, which are vague on the subject - Stalin had been informed of the initial talks and efforts were made to get the Soviets involved,[649] but they never participated in the Swiss discussions. [650] The reason given was the difficulty on the Western Allies' behalf of smuggling a Soviet representative into neutral Switzerland, with which the Soviet Union had no diplomatic ties.[651]

More difficult challenges, however, did not keep the operation from smuggling an Allied radio operator straight into Wolff's chief of staff headquarters in German occupied Milan, to provide communications to complete the surrender details, while the war was still raging.[652] Nor did it keep them on multiple occasions from smuggling general staff-level English and American intelligence and military officers across several borders in and out of Switzerland, to manage the surrender.[653] More importantly, the surrender of Italy was very much in both Russian and Swiss interests. It seems unlikely the two countries could not work out a covert agreement if their sole and mutual objective was to conclude the Italian surrender.

Given such considerations, the excuse for excluding the Russians appears hollow. Soon the perpetually paranoid Stalin, stirred up by Nazi innuendo [654] - the Germans were playing for both a separate peace and an Allied break of ranks, whichever came first [655]- was angrily accusing the Western Allies of secretly negotiating with the Germans. Stalin pestered the Anglo-Americans until the West eventually decided to end the contact with Wolff rather than find a solution that allowed the Soviets to participate.

[656] Of course, by this time the talks had gone on for two months. At the very last minute the program was saved, but still Russian observers were not allowed to be present until the very final details of the surrender document were being completed.[657]

If this is true, it indicates perhaps that there was more happening surreptitiously than Churchill and Dulles admitted. The United States consistently denied Stalin's accusations, and the official record of the operation appears to support this stance; Dulles and his envoys and Allied leaders clearly state in their communications the importance of not giving impressions that could be construed as negotiating. All talks were characterized as discussions opened for the purpose of arranging full and unconditional surrender. In a cable sent on 5 April,[658] Roosevelt denied to Stalin that agreements had been reached or that negotiations were even ongoing. He wrote:

"I have complete confidence in General Eisenhower, and know that he certainly would inform me before entering into any agreements with the Germans. He is instructed to demand, and will demand, unconditional surrender of enemy troops that may be defeated on his front.... I am certain that there were no negotiations in Berne at any time, and I feel that your information to that effect must have come from German sources, which have made persistent efforts to come between us.... Finally, I would say this: it would be one of the great tragedies of history if at the very moment of the victory now within our grasp such distrust, such lack of faith, should prejudice the entire undertaking after the colossal losses of life, material, and treasure involved. Frankly, I cannot avoid a feeling of bitter resentment toward your informers, whoever they are, for such vile misrepresentation of my actions or those of my trusted subordinates."

While it is true the Germans were trying to play the Allies against each other, Roosevelt could not know when he blasted Stalin's "informers" that the chief man he was denigrating was none other than Kim Philby, the Soviet master spy.[659] Philby would later defect to the Soviet Union and a communist hero's welcome following three decades of faithful service as a

Russian spy who intrigued throughout the top echelons of British intelligence.

Philby had been the source of Stalin's information in an incident that reportedly occurred several months earlier, when Dulles secretly met with another shady emissary suing for peace for Germany - a Herr Langbehn. [660] Himmler, notably Wolff's boss at the time, ostensibly had sent Langbehn, but to Dulles Langbehn described himself as connected to the German Foreign Ministry. To show Dulles he was acting in good faith, Langbehn presented certain Foreign Ministry records that were compelling to Dulles in their value and in proving Langbehn's bona fides, and that his negotiation query was in earnest. Dulles later described in enthusiastic tones the impact and value of the goods "in all their pristine freshness." [661]

Dulles had the papers copied and sent to OSS headquarters in Washington and London. In London, Kim Philby received the papers and promptly forwarded them to Stalin. Moles at OSS headquarters in Washington confirmed to Stalin Philby's findings.

According to the traditional history, the Langbehn "peace initiative" set in motion by Himmler, purportedly with Hitler's blessing, was actually planned as a form of political sabotage - part of the process of breaking up the Allies. The intent was to weaken the Allies' East/West alliance with artificial documents that would put the Soviets at odds with the United States and Britain. Counter to Himmler's plan, however, the documents Langbehn presented to Dulles were very real, not the specially forged papers that Himmler thought were being used. And, as noted, they were very compelling to Dulles.

What, or who, caused the important switch of the documents from fake to real papers may prove interesting when considered against ensuing developments. The information within the documents, the actual timing of the meeting and its results, the author has been unable to ascertain other than that it was initiated in the summer and fall of 1943. In fact, certain information around this negotiation appears to actually have been connected with Operation Sunrise, too, or perhaps the two are one, with the timing confused. I have been unable to untangle the two using the information I have discovered.

The timing, government services involved and personalities participating in the affair are all aligned, however, to suggest a possible connection between the Langbehn and Wolff negotiations. In fact, Langbehn's name was mentioned by Wolff when he was interrogated as a witness for the Nuremberg trials,[662] inferring he knew the man and worked with him as one of Himmler's industrialist contacts, mentioning specifically Langbehn's connections with Swedish Banker Raoul Wallenberg.

At any rate, Langbehn had approached Dulles on behalf of Himmler with very real and compelling "Foreign Ministry" documents, which one must assume were important papers relating to Germany's relationship with at least one other country, or more. The papers would either have been military, intelligence or commercial in nature, or a combination of these; and would have been important enough to get Dulles' rapt attention and a quick dispatch up the chain of command. They could have been any documents that fit this bill, but it is reasonable to assume the documents dealt with the recent agreement for technology exchange between the Third Reich and Japan. This agreement certainly fits the criteria of all the requirements above and would have been an eye-popping revelation to Dulles. A portion of this material would become the cargo of U-234, including the enriched uranium from the I.G. Farben plant at Auschwitz.

Himmler thought the documents being compromised were the faked papers. But for Langbehn, or anyone else for that matter, to have made a simple mistake of accidentally exchanging intentionally fraudulent documents created only for this political sabotage, in place of real, very important, Foreign Ministry documents that one must believe were well guarded, seems highly improbable. More likely, someone behind the scenes got the real documents into Langbehn's hands and was playing Himmler for the fool, apparently in a very real, but guarded, communication to the West through him. In this scenario, Himmler served as an unwitting front man and buffer, thus saving the unidentified arbiter from exposing himself to Hitler's possible wrath if the deceit was discovered.

From the outset, the ploy looks like a classic Bormann intrigue. By the spring of 1943, with Stalingrad fallen, Bormann had concluded that the war was all but lost and he had already begun his secret campaign to export as

much of Germany's economy as possible outside of the Third Reich. To ensure he would be around after the war to control that fortune, he needed to guarantee his post-war freedom and protection with those who would then be in control. Naturally, he would have begun looking for a conduit to the West, and through his broad range of dealings with Himmler possibly found Himmler's ruse and then co-opted it; using Wolff to send the technology exchange papers to Switzerland through Langbehn in place of the fraudulent documents. Unfortunately, agents in Switzerland reported back to Hitler that real documents had been leaked and Hitler, furious, held Himmler to account. Himmler was only able to save himself by arresting his emissary to Berne - who was presumably Langbehn.

Bormann would now have needed to find another pipeline to the West. Enter General Wolff. Or, as noted, possibly Wolff already had served as the contact that got Bormann's technology exchange papers into Langbehn's hands in the first place. As has already been stated, Wolf and Langbehn shared a working relationship through Himmler. And as also noted previously, Wolff had connections with Bormann as well. Wolff had been Himmler's personal chief of staff, Himmler's SS adjutant to Hitler, and SS liaison to the I.G. Farben plant, all of which required interfacing with Martin Bormann. In addition, Wolff was now the master of all of occupied Italy.

These positions and the experience gained from them would have made Wolff perfect for Bormann's negotiation needs. As Italian plenipotentiary Wolff had a degree of autonomy and physical distance from Berlin and close proximity to Switzerland that allowed him to relatively easily contact, and even meet with, emissaries from the West. He also commanded the occupying troops in Italy and maintained good relations with the commanders of the fighting troops there. Thus he had the capacity to bring the surrender to fruition - or at least play the role as a cover story possibly for the real negotiation at hand, that of exchanging the enriched uranium and other cargo of U-234 for Bormann's freedom.

As an officer in Hitler's court, Wolff had learned the tricky political landscape and how to engage in sophisticated high-level negotiations while watching his back, which Bormann would be well placed to protect anyway.

As Himmler's personal chief of staff, Wolff had been responsible for collecting and distributing Bormann's multi-million Reichmark-per-year contributions to Himmler's personal accounts. This made Wolff a tool of Bormann as well, and exposed him to a healthy appreciation for Bormann's power and modus operandi. And as a key player in Germany's enriched uranium production project, Wolff was singularly knowledgeable about its secret purpose and value, and therefore its use as a bargaining chip with the United States. For Bormann, Wolff was perfect for handling the delicate matters of the secret negotiations and to address the questions and details the Americans surely would have regarding the ransom being offered.

In turn, Wolff could gain much from this symbiotic relationship. With Bormann in Berlin to watch his back - and possibly even by then to have convinced Hitler secret negotiations with the West might be prudent - Wolf could win his freedom along with Bormann's by practicing his discrete diplomacy with a fair level of safety - as it appears he did. In fact, according to Wolff's post-war interrogations, as early as 6 February 1945 Wolff had discussed with Hitler, should the "secret weapon" not be completed in time, approaching the West with surrender options.[663] He indicated in the interrogation that Hitler not only did not forbid him from pursuing contact with the West, but that he, Wolff, interpreted this to be Hitler's unspoken approval of such a program, which Wolff then followed.

In a full report on Operation Sunrise that Allen Dulles and his assistant Gero von Schulze-Gaevernitz wrote at the end of the war, according to Wolff, Hitler had even issued a "secret order to seek any possible contact with the Allies." [664]

It seems doubtful given Hitler's penchant for getting even with traitors, that Wolff would have gone forward on the basis of Hitler's no-comment alone, without Bormann, or someone, assuring him of Hitler's approval. Later, when Wolff's actual surrender efforts were revealed to Hitler, the Führer complimented Wolff on following his course and on his apparent success, and thanked him for pursuing that course.[665] Hitler's approval came despite the fact Wolff had been threatened by his detractors - including Himmler - who were going to reveal his surrender activities to the Führer, and who assured Wolff the Führer would take drastic measures against him.

[666] Himmler did not want Wolff's negotiations conflicting with secret talks he was conducting with the Allies through the Red Cross, nor did he want word of his negotiations getting back to Hitler and having Hitler squelch all such negotiations.

Again, Bormann's influence appears to have been present in these events, for who else had the influence with Hitler to garner his support for Wolff to pursue peace negotiations with the West, when the opportunity was denied to Himmler? Himmler's arrest was ordered by Hitler when he learned Himmler was parlaying with the West through the Red Cross. Why would Hitler have applauded Wolff and denounced Himmler for pursuing the same action, unless a different, secret, desired result was being pursued by Wolff, which Bormann supported? And the fact that Bormann stirred Hitler to order Himmler's arrest, probably to stop Himmler's negotiations from interfering with Wolff's, attests to the fact that the master of the plan was Bormann, himself.

Add to this the fact that Hitler, despite forsaking his own survival, had ordered that Bormann be rescued from Berlin in order to preserve the political paperwork testifying of the Führer's consent to preserve the Nazi cause after his death, and it seems the secret weapons discussion between Hitler and Wolff may have held greater importance than at first review. General Kesselring had complained to Wolff, "Our situation is desperate, nobody dares tell the truth to the Führer, who is surrounded by a small group of advisors, who still believe in a last specific secret weapon which they call the 'Verzweiflungs' weapon." [667]

Interestingly, the report goes on to explain that Kesselring did not appear to doubt the existence or viability of the secret weapon - in fact, he believed the weapon would "prolong the war [but] could not decide it." But the General stated he would refuse to order its use, fearing the bloodbath it would cause. Kesselring's belittling accusation of the weapon being controlled by a small group of advisors rings of Speer's charge of Hitler being guided by "Sunday supplement" reporting regarding the atomic bomb - apparently a reference to Martin Bormann. And, as has been shown in a previous chapter, whenever the secret weapon was mentioned, particularly

during the last days of the war, it was always tied to Bormann, who appeared to be its overseer.

In reality, Hitler probably was so exhausted and dazed by his imminent downfall that Bormann probably had to do little more than make the suggestion for this scenario and Hitler, weary and desperate for a chance at some type of positive legacy, would have accepted it. One must ask, assuming there was, indeed, a secret weapon close to completion - as the evidence certainly attests there was - what would have been the disposition of those weapon components if they were not used by Germany before the end of the war, which they obviously were not? If the secret weapon did exist, but was not used by the Germans, what happened to it?

It is easy to assume and reasonable to believe that Wolff's discussion with Hitler regarding the German surrender and the secret weapon continued until resolution of the question was reached. If Hitler, on behalf of Bormann, was willing to entertain and even encouraged Wolff to pursue an agreement with the West on his behalf, certainly the purpose for such negotiations, and what currency was available with which to negotiate, was discussed. Hitler made clear during his last interview with Wolff that, while he approved of the dialog with the West, unconditional surrender was out of the question. On the other hand, they had to know they were not going to get something for nothing. Hitler, Bormann and Wolff almost certainly would not have left the outcome open, barring only unconditional surrender, but also would have recognized that whatever was agreed to could not fly in the face of the Allies' very public commitment to unconditional surrender.

Given the outcome of events, as described throughout this book, Hitler's purpose for the negotiations, it seems, was to get Bormann to freedom with Hitler's final orders and last will and political testament, to provide a breath of hope that some form of Nazism would survive. Bormann apparently had convinced Hitler that his plan to export and rebuild Germany's economy after the war, and thus ultimately win the conflict for Germany by economic means, still had potential. Indeed, as noted in a previous chapter, Hitler appears to have supported the plan from its inception. Likewise, it is reasonable to believe that Bormann convinced Hitler that such an outcome would posthumously justify the Führer's life's work and eventually honor

his legacy. The exchange currency for facilitating this agreement with the West would be the secret weapon.

If the Wolff/Dulles negotiations went further than a simple unconditional surrender - as Stalin's insistence and other indications suggest - and the secret mediation originated as an overture from Bormann to Dulles, upon hearing Bormann's name Dulles most likely would have been fascinated. For Dulles had identified Bormann years earlier as the Hitler minion most worth watching. "It is axiomatic that you keep your eye on the number two man - the one who does the work," Dulles once said of Bormann, whom he had met at a pre-war reception.[668]

Dulles' older brother, John Foster Dulles, who would soon be Eisenhower's Secretary of State, also had connections to Martin Bormann - through Bormann's old consort, I.G. Farben chairman Hermann Schmitz [669] - whom he had met during the Versaille Treaty negotiations.

Bormann, in his turn, recognized the value of Allen Dulles as a conduit to Roosevelt and had already gone to great lengths to create a pipeline to Dulles if he ever needed one. Industrialist Fritz Thyssen and Allen Dulles had met and hit it off following World War One, when the pair represented also their respective countries in the industrial reparations negotiations following that war. Thyssen became an ardent supporter of Hitler in the early years of the Nazi Party, but later withdrew his support and openly criticized Hitler in a public letter in protest of The Führer's human rights violations. Hitler, enraged, threw Thyssen into a concentration camp. Bormann however, "felt Thyssen was his ace in the hole if he ever needed a personal pipeline to Allen W. Dulles," wrote Paul Manning.[670] And so Bormann ensured that Thyssen and his wife were kept in a private home outside the main camp. Although it is questionable whether Bormann ever used Thyssen to contact Dulles, his foresight and investment in case the need ever arose speaks volumes regarding his understanding that Dulles would be the right person to contact when the critical moment arrived.

Thus a remarkable concentration of connections to Bormann were centered within Operation Sunrise - the Allied code name for the Wolff/Dulles talks to surrender occupied Italy. There is no evidence surrounding the secret talks that precludes Bormann having used the meetings as an opportunity to

negotiate his freedom for the enriched uranium and other components on board U-234. Proving, however, that Bormann actually took part in or influenced Sunrise is impossible. In light of Bormann's apparent connections to U-234 and the U-boat's activities, including Fehler's determination to surrender its important cargo and its high-profile passengers, even at the expense of Tomonaga's and Shoji's lives, it seems probable secret agreements were being followed. If, indeed, this was the case, the most logical place for these agreements to have been prepared was during the talks of Operation Sunrise.

Three additional points are worth considering in support of the above scenario. First, although the unconditional surrender agreement was written out in detail, during postwar discussions and interrogations Wolff often referred to the "oral agreement" he had made with Allen Dulles. Why would he specify verbal agreements rather than the surrender in whole unless he was trying to infer a separate importance to his discussions from the actual surrender itself, and thus that some of the agreements he and Dulles had concluded were not part and parcel of the instrument of surrender?

Having reviewed much of the Operation Sunrise files in the National Archives, I was unable to find any notes actually taken during the meetings. All documentation concerning these discussions are either reports summarizing the conclusions of the talks or indices of wireless transmissions that record the working out of logistics and reporting in broad terms on their progress. The lack of actual minutes or personal notes recording the proceedings may indicate a sanitizing of the record to eliminate proof of actual agreements made.

Supporting this scenario further is the fact that in the days immediately following the Italian capitulation, Wolff spent three days while still secured in his own headquarters in Fasano, Italy sequestered with Allen Dulles' right-hand man, Gero von Gaevernitz. These meetings, ostensibly to help Wolff compose his memorandum of events, were attended only by Gaevernitz and Wolff; not even Gaevernitz's OSS companion, a man who was sent specifically to monitor the surrender process, was allowed to participate.[671] The unidentified OSS agent - thought to be Donald Jones,

Dulles' man in Lugano [672] - recorded, however, that Wolff had twice requested the meeting immediately following the "unconditional" surrender "to discuss the settlement of certain urgent matters." [673]

What conditions were left to be settled in private following the unconditional surrender? What could not be discussed in the presence of Gaevernitz's colleague, much less be included in a report about the supposedly above-board "unconditional surrender"? There seems to have been no basis for such secret conferences if the unconditional surrender was actually implemented per the traditional history.

In addition, certain passages about the negotiations alluded to in the secret Operation Sunrise report, filed by Allen Dulles and Gero von Gaevernitz after the close of the European war, have been censored. [674] Again, this was done despite the fact the talks were supposedly based solely on unconditional surrender, which would seem not to require such mystery. The section introducing Wolff's report within that same document also admits that "one or two items" of Wolff's report had been eliminated because they were "not pertinent to this phase of our story."

A second possible proof-point suggesting Wolff provided secret concessions as part of the surrender includes the fact that General Wolff was not tried at Nuremberg immediately after the war with the other key defendants, despite his complicity in crimes against humanity.

Although he was Himmler's direct intermediary with I.G. Farben at Auschwitz, and he was SS leader and secret police chief in Italy, Wolff seems to have been immune from war crimes prosecutions at the Nuremberg Trials. Of course he denied his complicity, as did virtually all others involved in such activities, even though he admitted that the idea of using forced labor for SS profit was his idea, [675] and as commander in charge of providing forced laborers for Auschwitz, he was responsible for 25,000 deaths. [676] In addition, in Italy his troops massacred hundreds of Italian partisans on at least three occasions. [677]

Certainly he was as guilty as Farben's Krauch, Ambrose and Bütelfisch, and Auschwitz's Commandant Höss, or Bormann himself, and less guilty than Grand Admiral Dönitz, all of whom were tried and convicted immediately

after the war. Dönitz was convicted solely on the basis that he did not countermand an order from Hitler turning captured crew members of an Allied torpedo boat over to the SS, who executed them.[678] Certainly this set a precedent under which Wolff should have been held responsible for the slaughter of hundreds of helpless partisan prisoners under his command, not to mention the thousands who died at Auschwitz.

Wolff was not only ignored at the initial Nuremberg Trials but he was released in August 1949 following his usefulness as a witness to the crimes of others. He was later sentenced to four years by a denazification court, but was released after only one week! Twenty years after the war, Wolff drew attention to himself by granting an interview during the Adolf Eichmann trial. He aroused public opinion to the point that he could no longer be protected, and his past finally caught up to him. He was tried and sentenced to 10 years for providing Jews to the death camps.[679]

Despite the eventual conviction, such protection of an obvious war criminal suggests collusion on behalf of the United States in shielding Wolff from going to trial. Perhaps his possible involvement in the U-234 surrender negotiations contributed to his delicate treatment. Some will argue that Wolff secretly was granted immunity in exchange for initiating the Italian surrender discussions. These assertions may, in fact, be true, but the agreements also would have violated the terms of the unconditional surrender. The war crimes case of Admiral Dönitz demonstrates how diligent the Allies were in pursuing suspected war criminals. Dönitz, who was responsible for ending the European war by surrendering all of Germany within one week of Hitler's death, was not only tried but convicted on charges far less serious than those of which Wolff was admittedly guilty. The basis for Dönitz's trial was so slight that even American and British military commanders were appalled that Dönitz was tried, much less convicted.[680]

In comparison, Wolff's admitted complicity as the originator of the forced labor idea for I.G. Farben alone, compared against the specious charges against Dönitz, should have been a gauge ensuring Wolff would be tried with the others. And in comparison to Dönitz's surrender ending the war, the Italian surrender - despite Wolff's documented efforts to expedite and

facilitate it - took over two months to complete and did not actually occur until the same time the Reich's core armies in Berlin were capitulating and the war was, in effect, already lost. Therefore, in its full context, Wolff's surrender of the German southern front was meaningless. Why should the Allies have given any special treatment to Wolff for it?

Finally, the shadowy Herr Langbehn, who first revealed those enigmatic, extraordinary documents that were so compelling to Allen Dulles, bears a name of striking likeness to a Captain Lieutenant Langbein of the German Navy's foreign bureau, the Marine Sonderdienst Ausland Commission. Bormann biographer William Stevenson wrote that Martin Bormann had overall responsibility for the cargo of U-234,[681] which seems to be corroborated by General Wolff's comments during interrogations as a witness for the Nuremberg Trials, in which he stated Bormann and Walter Schellenberg, one of Himmler's toadies, were responsible for the Ausland, or foreign, commissions.[682]

Interrogations of U-234's prisoners and captured German records indicate that Langbein, under command of officer K.K. Becker [683] of the Marine Sonderdienst Ausland Commission, actually facilitated the collection and loading of the secret documents and materials [684] onto U-234 before its departure from Kiel.[685] In fact, Langbein is the name signed at the end of the freight manifest. It might be a long shot, but could Langbehn and Langbein have been the same man? Could the attorney who ostensibly was responsible for the Foreign Ministry documents shown to Dulles, which may have included records pertaining to U-234's cargo, also served as the "naval officer" who oversaw the documents and cargo loaded on to U-234?

The connection seems too compelling to ignore. Might Dulles have unwittingly misspelled the name upon hearing it; or knowingly altered the form by one sequential letter, an "h" to an "i", in order to mislead interested parties who might later put the two together? What is known is far from conclusive; and a positive answer may be too much to expect, but the possibility certainly should be explored further. Unfortunately, as mentioned in the introduction of this book, further investigation into this connection was beyond the time availability and resources of the author. Others who are interested in the answer may choose to pursue it.

Epilogue

Their was much written of a postwar 'foreign trade offensive' and of a 'European Economic Community' in which Germany would act merely as the 'flag bearer' and predominate by 'elastic political methods...not with brutal force. [686]

Peter Hayes, author *Industry and Ideology: I.G. Farben in the Nazi Era*

For a secret concern, the ramifications of the surrender of U-234 had far-reaching effects. Shortly before U-234 landed at Portsmouth Naval Yard, a leading Japanese scientist reported to the Japanese House of Peers that he was about to introduce a weapon "so powerful that it would require very little potential energy to destroy an enemy fleet within a few moments." [687] According to Robert Wilcox, author of *Japan's Secret War*, "the reference was clearly to an atomic bomb." By extension, the reference actually appears to have been toward the cargo on board U-234, and possibly from other U-boats, as well. The evidence is strong that the Japanese program had neither the technical capacity nor the needed uranium stocks to make such a bomb on its own. On the other hand, information exists that suggests at least one U-boat carrying nuclear components besides U-234,[688] and possibly more,[689] left German soil destined for Japan. It is unlikely, however, that these vessels carried all of the workings necessary to make a bomb; and it is especially unlikely that they carried enriched uranium.

With the surrender to the United States of U-234 and the nuclear components that were no longer going to Japan, Japanese possession of an atomic bomb to use against its enemies was unlikely. And yet immediately after the attacks on Hiroshima and Nagasaki, a Japanese broadcast claimed that they had "similar weapons and will retaliate." [690] Perhaps this was a bluff, or perhaps it was true, but more likely, they had not yet realized that

the weapons they were prematurely claiming to possess had already been turned over to their enemies. While there are reports the Japanese tested an atomic bomb,[691] certainly they never used one in battle.

The leaders of Japan were not the only ones left wondering what had happened to their bomb. A few months after the United States dropped the bombs on Japan, leaders in certain Latin American countries began complaining that the bombs had been stolen from Germany.[692] How these leaders may have discovered that fact is fascinating, considering that Martin Bormann probably continued his escape from U-234 through Spain and on to Latin America, with those leaders' collusion, and probably told them what had happened. The Latin American leaders' revelation is therefore not only another piece of evidence suggesting Bormann's escape, but indirectly, possibly of the uranium being enriched, as well.

Whatever the case, the surrender of U-234 certainly caused a commotion. According to former naval intelligence officer Bruce Scott Old, General Groves "almost had apoplexy when the Germans launched a submarine called U-235." [693] Old asserted that Groves thought the U-235 designation referred in some way to a cargo of enriched uranium the U-boat was carrying. Then Old explained that he thought Groves had confused U-235 with U-234.

Intelligence Officer Old must have been right, there must have been some confusion, because it is highly improbable Groves' excitement was caused solely by the surrender of a U-boat designated U-235; for two reasons. First, because U-235 was not surrendered, it had been a training boat throughout most of the war and then was sunk in the Baltic Sea on its maiden combat mission.[694] And second, because it was widely known, even by the American public, that U-boats were designated with consecutive "U" numbers.

Certainly there was a U-235, and there was absolutely no reason to believe its "U" designation was in any way related to any cargo it may have carried or mission it was intended to perform. Therefore, there is no reason whatever to believe that a U-boat designated U-235 would cause any anxiety in General Groves; he would have thought nothing of it. Old went

on to say that Groves was concerned that the report on the mysterious U-boat indicated it had been heading for Argentina.

Certainly, despite the confusion, the details of this story match exceedingly well with those of U-234. If Groves was concerned about a U-boat carrying U235, it would almost certainly have been U-234, and Groves most probably would have known the entire story behind U-234. Apparently, the story Old recited was a skewed account of the surrender of U-234. The story also adds weight to the argument that the uranium on board U-234 was, indeed, uranium enriched in U235.

All of these rumblings pale in importance, however, compared to the larger picture of the impact upon our world of U-234 and its strange cargo. Looking back comfortably from the vantage point of over half a century since the end of World War Two, it is easy to presume that throughout the last half of the war its outcome and the race for the atomic bomb would reach a predetermined conclusion. The evidence now available about U-234's cargo and passengers paints a frighteningly different picture, however. The evidence, taken in whole, shows that the United States was not necessarily leading in the race for the atomic bomb, as has been claimed. The evidence shows that Germany was very near having all of the components for a bomb; and that the Nazis were dealing their bomb to the Japanese to use in the Pacific. The evidence, in fact, shows that atomic bombs may have been ready for use by both sides at a frighteningly close point in time. The consequences could have been abysmal.

A key question is, if the German program had the components for a bomb, why did it not use one? The answer is simple: by the time enough enriched uranium was available to complete a weapon, the Germans had lost control of the skies over Europe. Since the Luftwaffe had lost control of the skies, there was little that could be done to transport the bomb to a strategic target. Any bomber approaching Allied territory would be attacked mercilessly, and therefore had little chance of reaching a viable target objective.

Other transport systems were impossible as delivery options, or highly problematic at best. Trains traveling in and out of the Reich were carefully searched - when they were allowed to cross the frontier at all - as were all other forms of ground transportation. Surface ships, likewise, were tightly

controlled. A submarine delivery was possible, but was very problematic and too risky. To deploy the bomb by U-boat meant the vessel would have to sneak undetected into the harbor of an enemy major city or military installation and either sacrifice itself and crew or leave the bomb in the harbor with a mechanism to detonate it hours after the U-boat had departed. Detection of the U-boat approaching or trying to enter the harbor - a high probability - meant failure and loss of the weapon, a risk too high to accept given the great expense and potential of the bomb.

In addition to the great risk involved in a non-air delivery, up to 75 percent or more of the destructive capacity of the weapon would have been lost in a surface or sub-sea explosion. The ultimate in damage efficiency for the bomb was detonation about 1,500 feet directly above the center of its target. Without the capacity to deliver the bomb to a target of commensurate value, preferably by air, use of the weapon would have been a waste. But on board U-234 were not only enriched uranium, but plans, parts and personnel to build V-2 rockets and Messerschmidt 262 jets. Although the ME262 was designed as a jet fighter, Hitler had ordered that it be redesigned and deployed as a small bomber.[695]

That idea was taken one step further when a plan was baked by General Kreipe to have a small bomber, armed with an atomic bomb, piggybacked across the Atlantic to New York.[696] At the distance limit of the mother plane the small craft would be launched in-flight to finish the bomb run. Once the payload had been dropped, the pilot would ditch the jet, parachute into the ocean, and then be retrieved by a U-boat.

The plans and components for a first high-altitude cockpit were reportedly also on board U-234.[697] There is no direct indication whether this cockpit was or was not a component of the ME262 plan. As bizarre as it may seem, the cockpit may, in fact, have been designed for the V-2 rocket.

Interrogations of some of the prisoners of U-234 may shed interesting light on what possibly was planned for these components. Both General Kessler and Party Judge Nieschling, who were passengers on board U-234, answered questions during their interrogations about cockpits that had been installed in V-1 flying bombs and Japanese rocket planes.[698]

Indeed, Hanna Reitsch, the brave German aviatrix already mentioned within these pages for flying Bormann out of Berlin, was awarded the Iron Cross by Hitler himself for test flying the V-1 bomb, which had been modified for a pilot. Nieschling indicated that in the hands of the Japanese, the intent of such a weapon was to have it piloted by kamikazes.[699] The Japanese were already using kamikazes to pilot their small, wooden, one-man, rocket-propelled bomb-planes that the Americans disparagingly called Baka bombs.[700]

Baka means "foolish" in Japanese. The very short-range Baka bomb was piggybacked to its destination by a four-engine plane, and carried a charge of high explosive. The Baka bomb was relatively ineffective, however, compared to its cost to produce, to deliver to a target, and especially in its steep cost of human kamikaze pilots.

The specially designed V-2 rocket U-234 was carrying, on the other hand, was a powerful weapon that could carry a substantial payload across great distances, if Colonel Schlicke's comment to radioman Hirschfeld regarding it being the rocket that could cross the Atlantic is true.[701] Armed with an atomic warhead, which the Germans were already working on,[702] it would become the ultimate weapon of war. The V-2 also had the advantage of traveling at great speeds. The rocket's only shortcoming was lack of a guidance system. The kamikaze could solve that, too. All the rocket needed was a cockpit that would allow the pilot to survive in the rarefied atmosphere of near-space on its way to its target. Was this the purpose of the high-altitude cockpit? Were there plans to adapt the kamikaze strategy of the V-1 and Japanese Baka rocket-plane to the exponentially faster, more powerful, greater-distance capabilities of the V-2?

The German/Japanese strategy might have looked something like this: Upon Germany supplying V-2 components, technology and expertise to Japan, the Japanese would build V-2 rockets equipped with controls to be operated by a kamikaze pilot placed in the specially-equipped high-altitude cockpit. The rocket would be armed with a uranium warhead that would be detonated at the appropriate time by the ill-fated pilot, saving the program the considerable additional technological expense and development of designing altitude-triggered proximity fuses. The speed and high-altitude

characteristics of the V-2 were indefensible by the Allies. And the long range of the rocket - which would allow the pilot to fly the weapon from the Japanese mainland to the closest Allied-controlled islands - had the double benefit of providing the element of surprise to the attack.

Once over the target island - perhaps the first would be the enemy-held land closest to the Japanese homeland, Iwo Jima - the kamikaze pilot would detonate the bomb, completely eliminating the enemy outpost and huge numbers of the enemy and his war-making materials. With this sacrifice the kamikaze would achieve the highest possible honor among his people, and, should the war be won by his bravery, he was sure to be a national hero - posthumously of course. With Iwo Jima won, the following suicide rocket would be launched from that location to the next strategically held enemy island, and so on back across the Pacific, roughly in reverse order of how the Allies had won the islands from the Japanese.

Presumably 10 to 15 bombs would be required before the United States, Britain and Russia - the Soviets would be in the war by then, and would have been bombed by similar V-2 attacks in China and Manchuria - would surrender. Japan would win the war, and Nazi Germany, as Japan's ally, though once defeated, would rise like a phoenix from the battlefield ashes to control Europe, while Japan lorded over the Eastern Hemisphere. It is hard to imagine the consequences such an outcome would have meant to the United States and the rest of the Americas. Certainly Japan and Germany could not allow American sovereignty to continue unchecked in the Western Hemisphere.

The United States had the economy and resources to support a significant military defensive from its shores, or a substantial guerrilla resistance force. The Japanese and Germans would have had a difficult challenge controlling the vast enemy territories they already held, by virtue of the V-2 offensive, on their own continents, much less maintaining over-stretched command and communications and supply chains across the Atlantic and Pacific. Probably a stalemate would have resulted between the Japanese and German juggernaut and the United States, constructed of dubious treaties enmeshed in ultimatums - a Cold War with an enemy other than the Soviets and with an entirely different complexion.

Or perhaps while the Japanese and their imported German technicians completed their bomb program, the Manhattan Project would have solved its challenges triggering the plutonium bomb, as it appeared to be on track to do between November and the end of 1945. The Japanese, had U-234 not dallied to escort Bormann and then surrender to the United States, easily could have received the German goods from U-234 as early as July, and concluded their atomic bomb and V-2 rocket preparations by November - roughly the same time-period the Manhattan Project's bombs would have been ready. Who would have used the first atomic bomb? And what would the response have been?

Perhaps already in late 1945 or early 1946, nuclear war would have seared our collective experience as a family of beings mutually inhabiting this planet. What would the outcome have been? What would each of our lives be like? On equal atomic terms, would the mission of one nation to assure self determination to all countries, confronted by the requirement of other nations to sustain their own people by annexing the land and resources of other sovereignties, have dictated an unimaginable ending to the conflict? Or would the leaders of two social systems so diametrically opposed to one another, for the sake and at the cost of the marginalized existence of many billions of people, have overlooked each other's immoralities to find life, of its own virtue, a more justifiable objective.

Could the two sides agree to disagree, treating the subjugation of millions or billions of people as inconsequential compared to the alternative? The world, in so many, often unfathomable, ways, would have been a markedly different place were it not for the historic outcome of the mission of U-234. Beyond altering what our world would look and feel like had U-234 delivered its cargo and passengers to Japan, the surrender of U-234 also has had a weighty and long-lasting direct influence on the lives we each lead. The surrender of U-234 has helped define our present-day world.

The quick and deep revival of the West German economy appears to be the fruits of Martin Bormann's Flight Capital Program - triggered by Bormann's apparent escape and post-war freedom - guaranteed by the United States, and all made possible by U-234's surrender.

The Flight Capital Program that fueled the swift post-war resurrection of the West German economy - probably with the covert support of the United States, and to its benefit, off course - therefore, appears to have had a profound impact on the European and world economies in their turn. Bormann's plan for continued German dominance after the war apparently was so well structured, so deeply entrenched in the fabric of the many operations and national economies co-opted, and so rich in those assets, that its permutations easily can be seen up to today. The plan can even be seen in the European Economic Community that was recently confederated around the "Euro," with Germany at the heart of the initiative.

According to author Peter Hayes' book *Industry and Technology: I.G. Farben in the Nazi Era*, that confederation was planned for by Bormann in 1943.[703] Hayes wrote: Their was much written of a postwar 'foreign trade offensive' and of a 'European Economic Community' in which Germany would act merely as the 'flag bearer' and predominate by 'elastic political methods...not with brutal force.[dcciv] The survival of and economic power generated by such multi-billion-dollar titans as Bayer, Hoescht, Volkswagen, AGFA-ANSCO and a long list of others, can all be traced to Bormann's Flight Capital Program. And their cumulative influence can be felt throughout the world economy, effecting each of us intimately, though imperceptibly, as we live our lives day to day.

The world, of course, continues to turn in the present as it has in the past. Half a century after the last global conflict ended, the echoes of its orators and ordnance are reverberating in ever-softening tones as we dash away toward new destinies - which too often are being defined by ever more meddlesome technologies and increasingly intractable amorality. At times it behooves us to stop a moment and look back. To try to wave clear the obscuring smoke of the past and discern through that awful mist, what caused the pall; so that new methods may be found to resolve the critical questions upon which our mutual peace and security lie. As we look back, we should not be shocked to find that great doors sometimes swing on small hinges.

That an eclectic handful of men and women - some of them great, but as often people of middling mien - stand at the center of enormous events and

knowingly or unknowingly pull the levers and turn the knobs that define our world. So it was with U-234.

THE END

Notes

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Commodore Kurtz, U.S.N. E.S.F., 18 May, 1945; second telephone conversation transcript Captain Herbster and Commodore Kurtz, 18 May, 1945

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[17] Richard Rhodes, The Making of the Atomic Bomb, p. 608, 609

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[20] US Archives Southeast Region, East Point, Georgia, telephone transcript titled Telephone Conversation Between Major Smith, WLO and Major Traynor, 14 June, 1945

[21] Personal telephone conversation between the author and Dr. Susan Frost, PhD, Associate Professor of Biochemistry and Molecular Biology,

College of Medicine, University of Florida, 30 August 1999, also Dr. Wentworth, University of Houston

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[23] US Archives NARA Southeast Region, East Point, GA, untitled handwritten note dated 6/16/45

[24] US Archives NARA Southeast Region, East Point, GA, Beta Oxide Transfer Report; see also chart on page ____

[25] Personal telephone conversation between the author and Edward Hammel, Manhattan Project metallurgist, 14 May, 1996

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- [45] Stephen Groueff, *Manhattan Project*, p. 36
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- [48] Richard Rhodes, *The Making Of The Atomic Bomb*, pp. 450, 451
- [49] Robert Serber, *The Los Alamos Primer*, p. ix
- [50] Leona Libby, *The Uranium People*, p. 194
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- [71] David Irving, *The German Atomic Bomb*, p. 49
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- [80] Richard Rhodes, *The Making Of The Atomic Bomb*, pp. 402, 403
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- [96] Yisrael Gutman and Michael Berenbaum, *Anatomy of the Auschwitz Death Camp*, p. 39

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- [98] David Irving, *The German Atomic Bomb*, p. 235
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- [119] David Irving, The German Atomic Bomb, p. 77
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